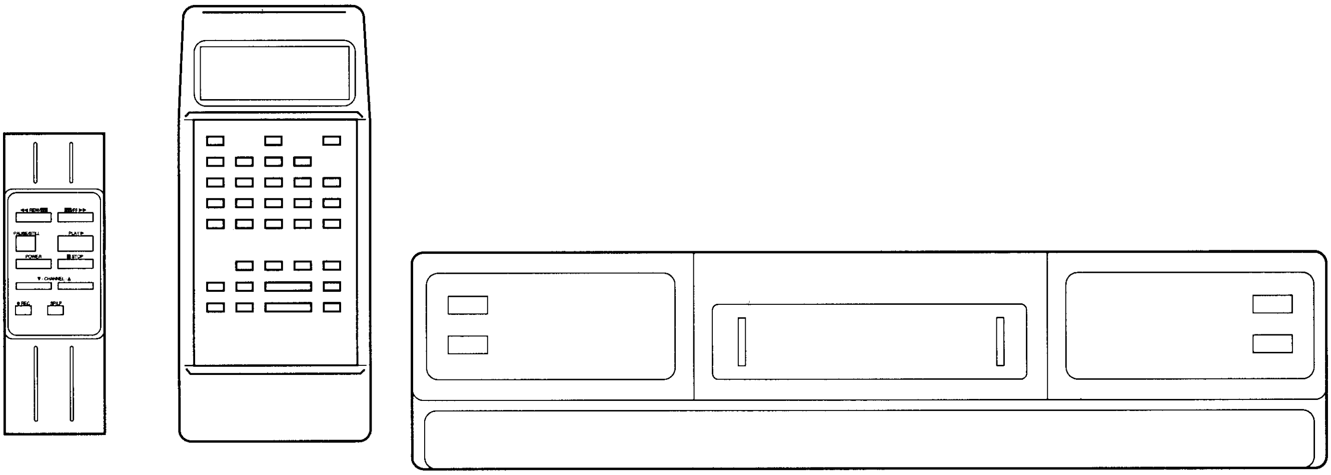
BAIRD

VIDEO RECORDER

VC153NX



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SERVICE MANUAL

TPH1699

PRODUCT SAFETY NOTICE

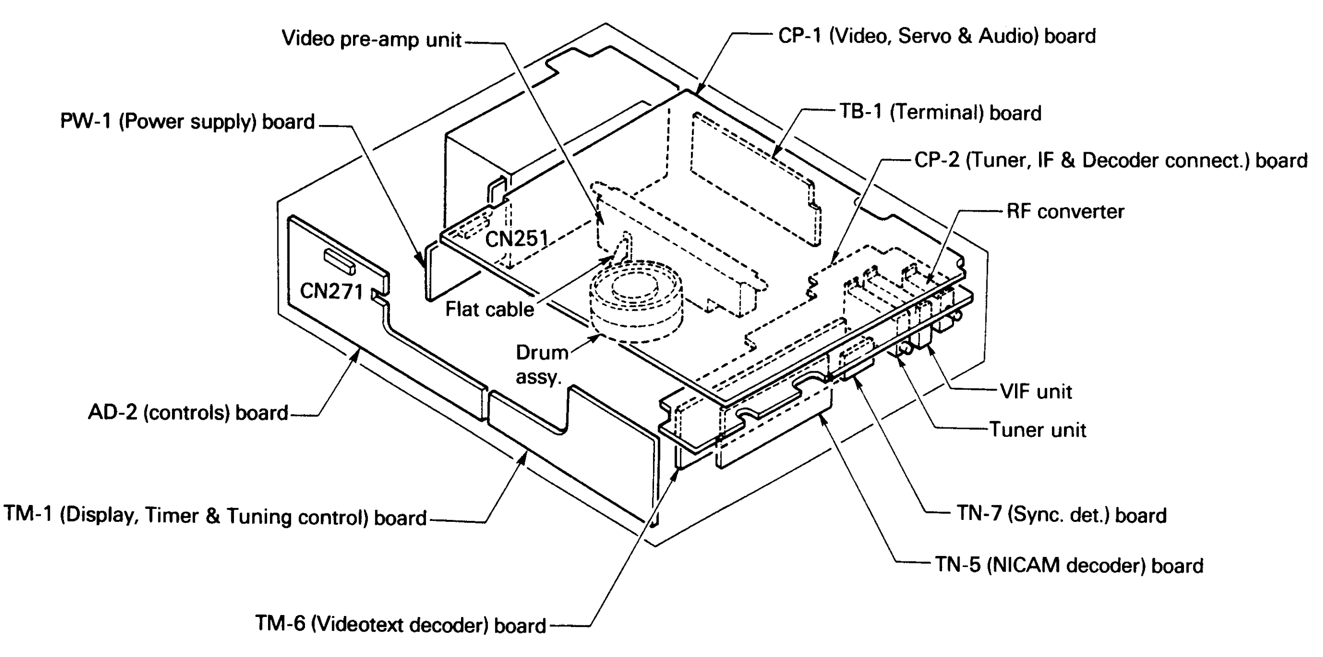
The components designated by a symbol (⚠) in this schematic diagram designates components whose value are of special significance to product safety. Should any component designated by a symbol need to be replaced, use only the part designated in the Parts List. Do not deviate from the resistance, wattage and voltage ratings shown.

NOTES:

1. All resistance values in "OHMS" unless otherwise noted. (K = 1,000, M = 1,000,000)
2. All capacitance values in "μfd" unless otherwise noted.
   p = pico farad
3. All inductance values in "mH" unless otherwise noted.
   μ = micro henry

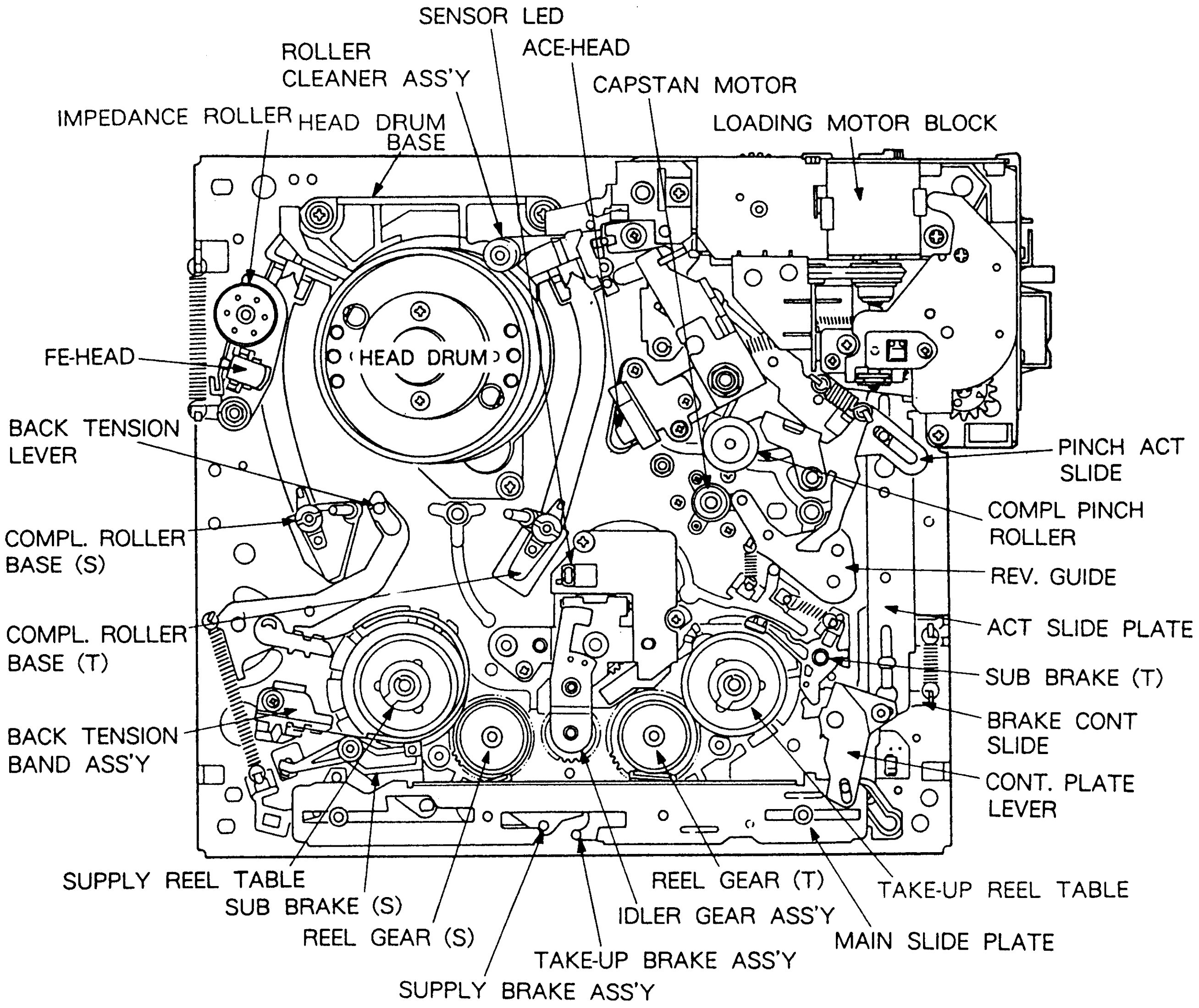
1. Main Board and Mechanism Part Locations

1-1. MAIN BOARDS

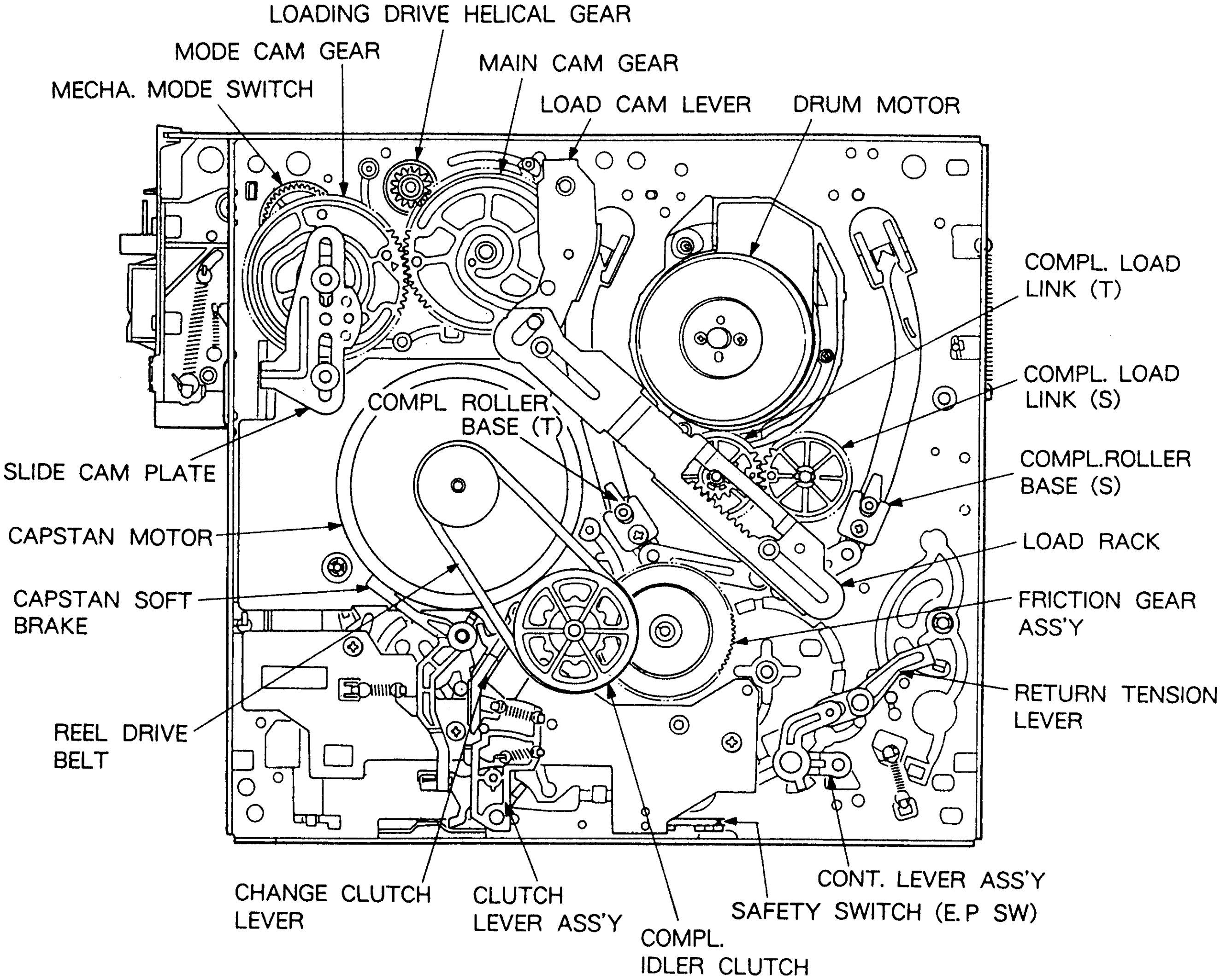

L13L046
Video pre-amp unit
CP-1 (Video, Servo & Audio) board
TB-1 (Terminal) board
PW-1 (Power supply) board
CP-2 (Tuner, IF & Decoder connect.) board
RF converter
CN251
CN271
Flat cable
Drum assy.
VIF unit
Tuner unit
AD-2 (controls) board
TM-1 (Display, Timer & Tuning control) board
TN-7 (Sync. det.) board
TN-5 (NICAM decoder) board
TM-6 (Videotext decoder) board

1-2. MAIN MECHANISM PARTS LOCATIONS

(1) Mechanism Assembly (Top View)

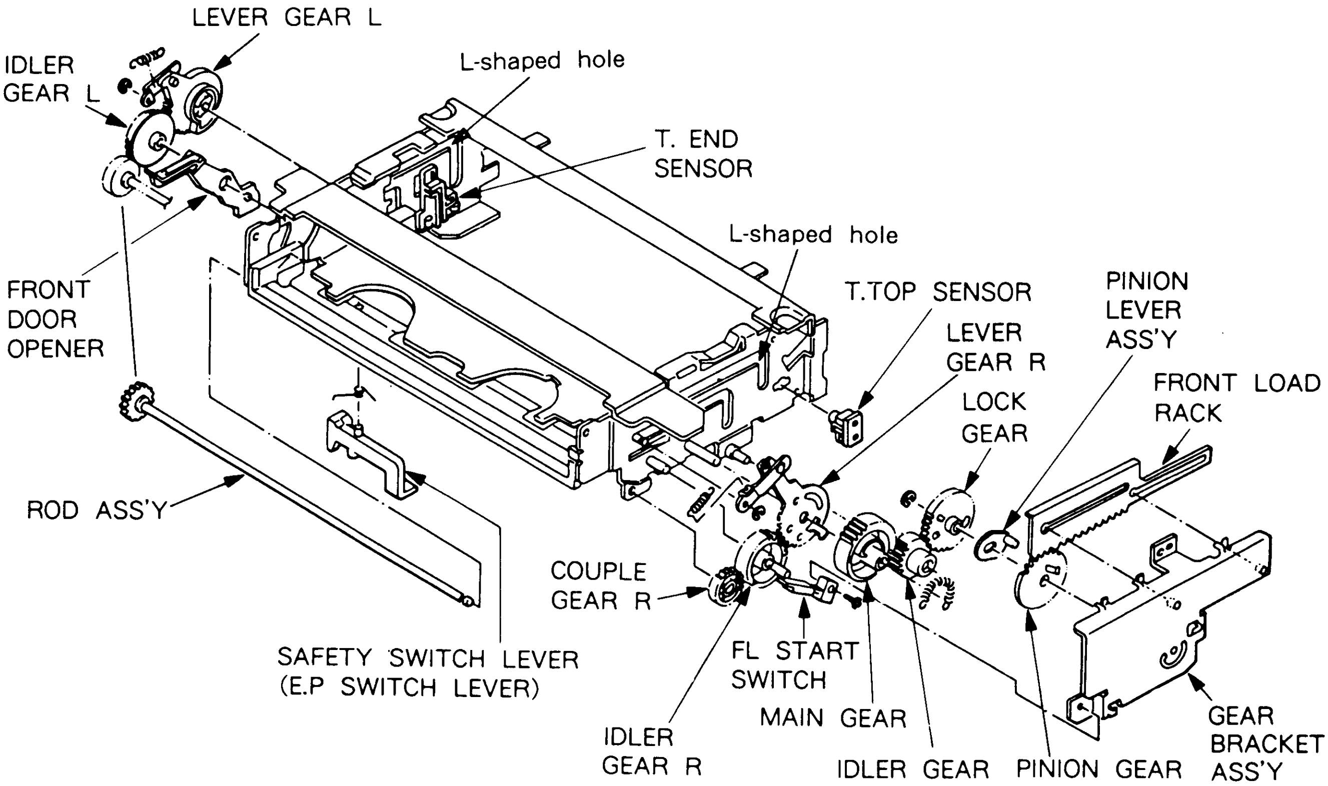

SENSOR LED
ROLLER CLEANER ASS'Y
ACE-HEAD
CAPSTAN MOTOR
IMPEDANCE ROLLER
HEAD DRUM BASE
LOADING MOTOR BLOCK
HEAD DRUM
FE-HEAD
BACK TENSION LEVER
COMPL. ROLLER BASE (S)
COMPL. ROLLER BASE (T)
BACK TENSION BAND ASS'Y
PINCH ACT SLIDE
COMPL PINCH ROLLER
REV. GUIDE
ACT SLIDE PLATE
SUB BRAKE (T)
BRAKE CONT SLIDE
CONT. PLATE LEVER
SUPPLY REEL TABLE
SUB BRAKE (S)
REEL GEAR (S)
SUPPLY BRAKE ASS'Y
TAKE-UP BRAKE ASS'Y
IDLER GEAR ASS'Y
REEL GEAR (T)
MAIN SLIDE PLATE
TAKE-UP REEL TABLE

(2) Mechanism Assembly (Bottom View)



LOADING DRIVE HELICAL GEAR
MODE CAM GEAR
MECHA. MODE SWITCH
MAIN CAM GEAR
LOAD CAM LEVER
DRUM MOTOR
COMPL. LOAD LINK (T)
COMPL. LOAD LINK (S)
COMPL.ROLLER BASE (S)
LOAD RACK
FRICTION GEAR ASS'Y
RETURN TENSION LEVER
COMPL ROLLER BASE (T)
SLIDE CAM PLATE
CAPSTAN MOTOR
CAPSTAN SOFT BRAKE
REEL DRIVE BELT
CHANGE CLUTCH LEVER
CLUTCH LEVER ASS'Y
COMPL. IDLER CLUTCH
SAFETY SWITCH (E.P SW)
CONT. LEVER ASS'Y

(3) Front Loading Mechanism


LEVER GEAR L
IDLER GEAR L
L-shaped hole
T. END SENSOR
L-shaped hole
FRONT DOOR OPENER
T.TOP SENSOR
PINION LEVER ASS'Y
LEVER GEAR R
LOCK GEAR
FRONT LOAD RACK
ROD ASS'Y
COUPLE GEAR R
SAFETY SWITCH LEVER (E.P SWITCH LEVER)
FL START SWITCH
MAIN GEAR
IDLER GEAR R
IDLER GEAR
PINION GEAR
GEAR BRACKET ASS'Y

2. Mechanism Dismantling and Reassembling

2-1. MECHANISM MAIN UNIT (See Fig. 2-1-1.)

1. Removal

1) Remove the connectors of the COMPL MC-3 and the COMPL HEAD BRACKET.
2) Remove the flexible cable ① connecting the COMPL CYLINDER to the PRE-AMP UNIT ③. (See Fig. A.)
3) Remove the two screws ②, then remove the PRE-AMP UNIT ③.
4) Remove the two screws ④, then remove the PRE-AMP BRACKET ⑤.
5) Remove the two screws ⑥.
6) Remove the three screws ⑦ and two screws ⑩, then lift up the mechanism main unit and remove it.
   Since the TRAY ⑧ obstructs removal of the two front screws ⑩, move the TRAY LOCK LEVER ⑨ in the direction of the arrow to unlock, then slide the TRAY ⑧ before removing the screws. (See Fig. B)

Note: Shape of the PRE-AMP UNIT ③ and the PRE-AMP BRACKET ⑤ differ depending on the model.

2. Remounting

1) Mount the mechanism main unit onto the chassis with the three screws ⑦ and two screws ⑩.
2) Tighten the two screws ⑥.
3) Mount the PRE-AMP BRACKET ⑤ with the two screws ④.
4) Mount the PRE-AMP UNIT ③ and the ground lug with the two screws ②. (some models are not provided with a ground lug.)
5) Insert the flexible cable ① into the connector of the PRE-AMP UNIT.
6) Connect the connectors of the COMPL MC-3 and COMPL HEAD BRACKET.

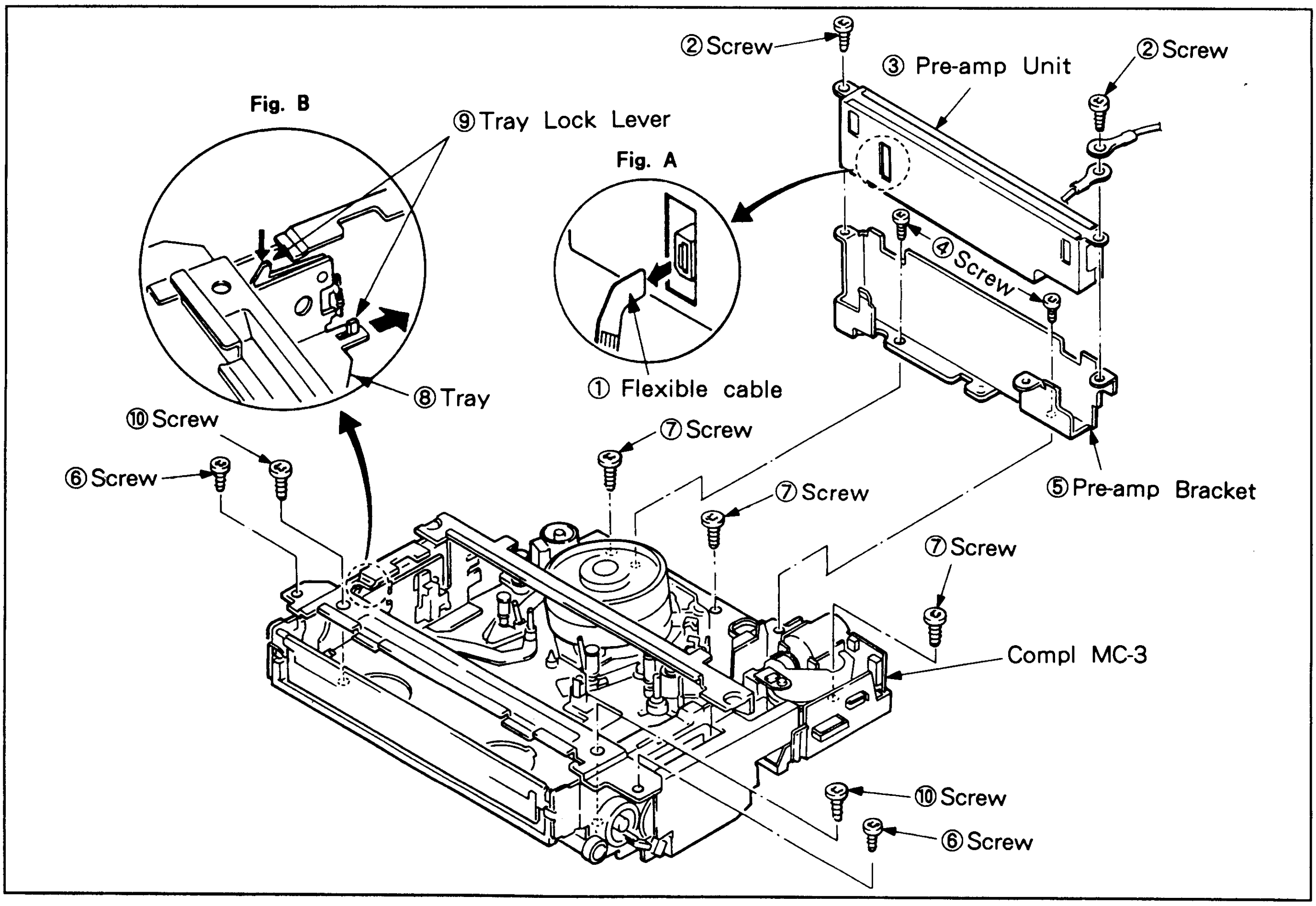

②Screw
③ Pre-amp Unit
②Screw
Fig. B
⑨Tray Lock Lever
Fig. A
④Screw
⑧Tray
① Flexible cable
⑩Screw
⑦Screw
⑥Screw
⑦Screw
⑤Pre-amp Bracket
⑦Screw
Compl MC-3
⑩Screw
⑥Screw

Fig. 2-1-1. Mechanism Main Unit

2-2. CASSETTE MECHANISM ASSEMBLY

2-2-1. CASSETTE MECHANISM (See Fig 2-2-1.)

1. Removal

1) Set the video main unit to the EJECT completed mode.
2) Pull out the connectors (6-PIN CONNECTOR connected to the system control circuit board, ACE HEAD CONNECTOR, and FTE HEAD CONNECTOR) from CASSETTE HOLDER.
3) Remove the two screws ①.
4) Remove the two screws ②.
5) Lift up the COMPL CASSETTE MECHANISM ④ back a little and remove the two hooks ③ on the front. (See Fig. B.) When doing so, make sure that the SAFETY SWITCH LEVER is not caught by the mechanism chassis.

2. Remounting

1) Set the chassis section mechanism to the EJECT mode with the mode selector (VHJ-0050) (looking from the top, align the EJECT mode positioning alignment hole ⑤ to the MOTOR HOLDER hole ⑥ as shown in Fig. A).
2) Set the COMPL CASSETTE MECHANISM ④ to the EJECT completed mode.
3) Mount the COMPL CASSETTE MECHANISM ④ onto the mechanism chassis, aligning it with the protuberance.
   Align the EJECT mode positioning alignment mark ⑧ to the △ positioning alignment mark ⑦. (See Fig. A)
4) Fix to the mechanism chassis with the two screws ②.
5) Fix to the chassis with the two screws ①.
6) Connect to the various connectors.

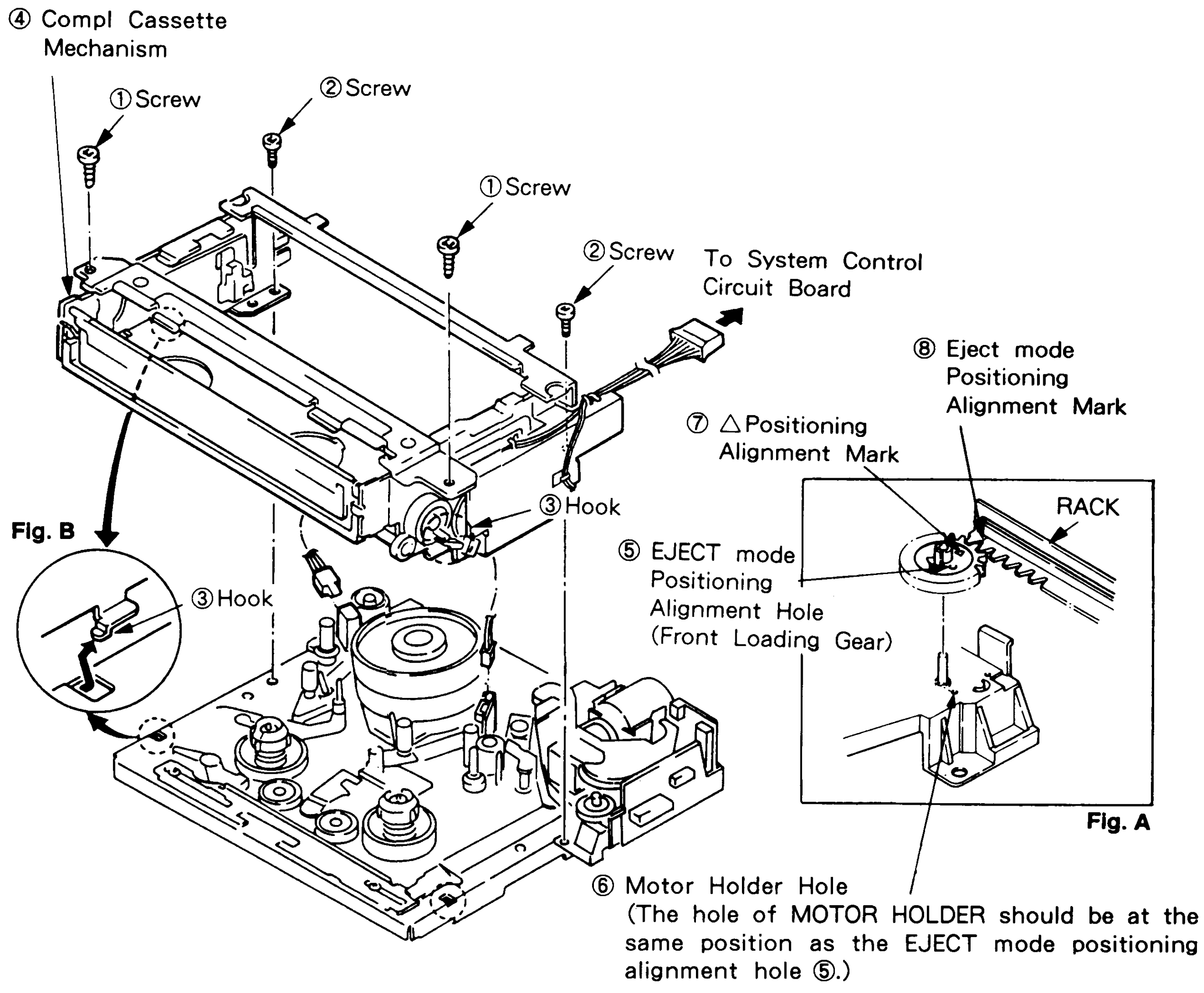

④ Compl Cassette Mechanism
① Screw
② Screw
① Screw
② Screw
To System Control Circuit Board
⑧ Eject mode Positioning Alignment Mark
⑦ △Positioning Alignment Mark
RACK
③ Hook
⑤ EJECT mode Positioning Alignment Hole (Front Loading Gear)
Fig. B
③ Hook
Fig. A
⑥ Motor Holder Hole (The hole of MOTOR HOLDER should be at the same position as the EJECT mode positioning alignment hole ⑤.)

Fig. 2-2-1. **Cassette Mechanism**

2-2-2. GEAR BRACKET ASS'Y (See Fig. 2-2-2.)

1. Removal

1) Remove the COMPL CASSETTE MECHANISM as instructed in 2-2-1.
2) Remove the four screws ①, then remove the GEAR BRACKET ASS'Y ② as shown in Fig. A.
3) Remove the E ring ③, then remove the LOCK GEAR ④, the PINION LEVER ASS'Y ⑤, the PINION GEAR ⑥ and the RACK ⑦, in that order.

2. Remounting

1) Apply grease to the shaft ⑧ and the two pins ⑨ of the GEAR BRACKET ASS'Y.
2) Apply grease to the pin ⑩ of the PINION LEVER ASS'Y.
3) Apply grease to the toothed part of the RACK ⑦.
4) Fit the RACK ⑦ onto the two pins ⑨. Align the positioning alignment hole ⑪ to the positioning alignment hole ⑫ of the GEAR BRACKET.
5) Mount the PINION GEAR ⑥, PINION LEVER ASS'Y ⑤, and LOCK GEAR ④ in the shaft ⑧ in the order mentioned.
   Align the positioning alignment holes ⑬ of PINION GEAR and LOCK GEAR with the positioning alignment hole ⑪ of RACK at that time.
6) Mount the E ring ③ onto the shaft ⑧.
7) Set the GEAR BRACKET ASS'Y ② to the dowel and mount it using four screws ①.
   Align the positioning alignment hole Ⓐ of the IDLER GEAR with the positioning alignment hole Ⓑ of the SIDE BOARD as shown in Fig. 2-2-3 at this time.
   Also align the positioning alignment holes ⑬ of PINION GEAR and LOCK GEAR with the positioning alignment hole ⑫ of GEAR BRACKET by referring to Fig. 2-2-2. After mounting them, check to be sure that FL START SWITCH ⑭ is in the ON state shown in Fig. A.
8) Remount the COMPL CASSETTE MECHANISM as instructed in 2-2-1.

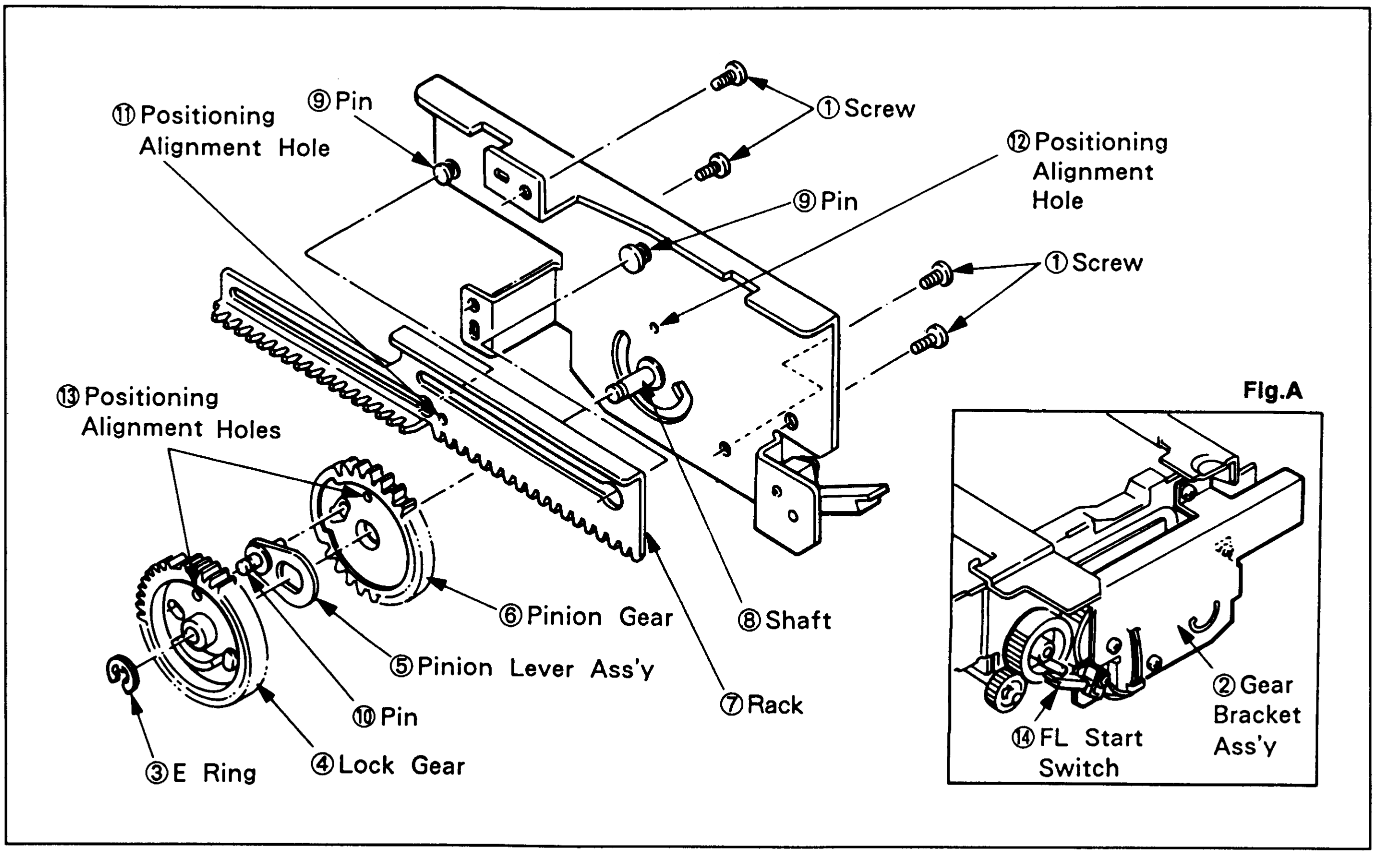

⑪ Positioning Alignment Hole
⑨ Pin
① Screw
⑫ Positioning Alignment Hole
⑨ Pin
① Screw
⑬ Positioning Alignment Holes
⑥ Pinion Gear
⑤ Pinion Lever Ass'y
⑩ Pin
③ E Ring
④ Lock Gear
⑧ Shaft
⑦ Rack
Fig.A
② Gear Bracket Ass'y
⑭ FL Start Switch

Fig. 2-2-2. Gear Bracket Ass'y

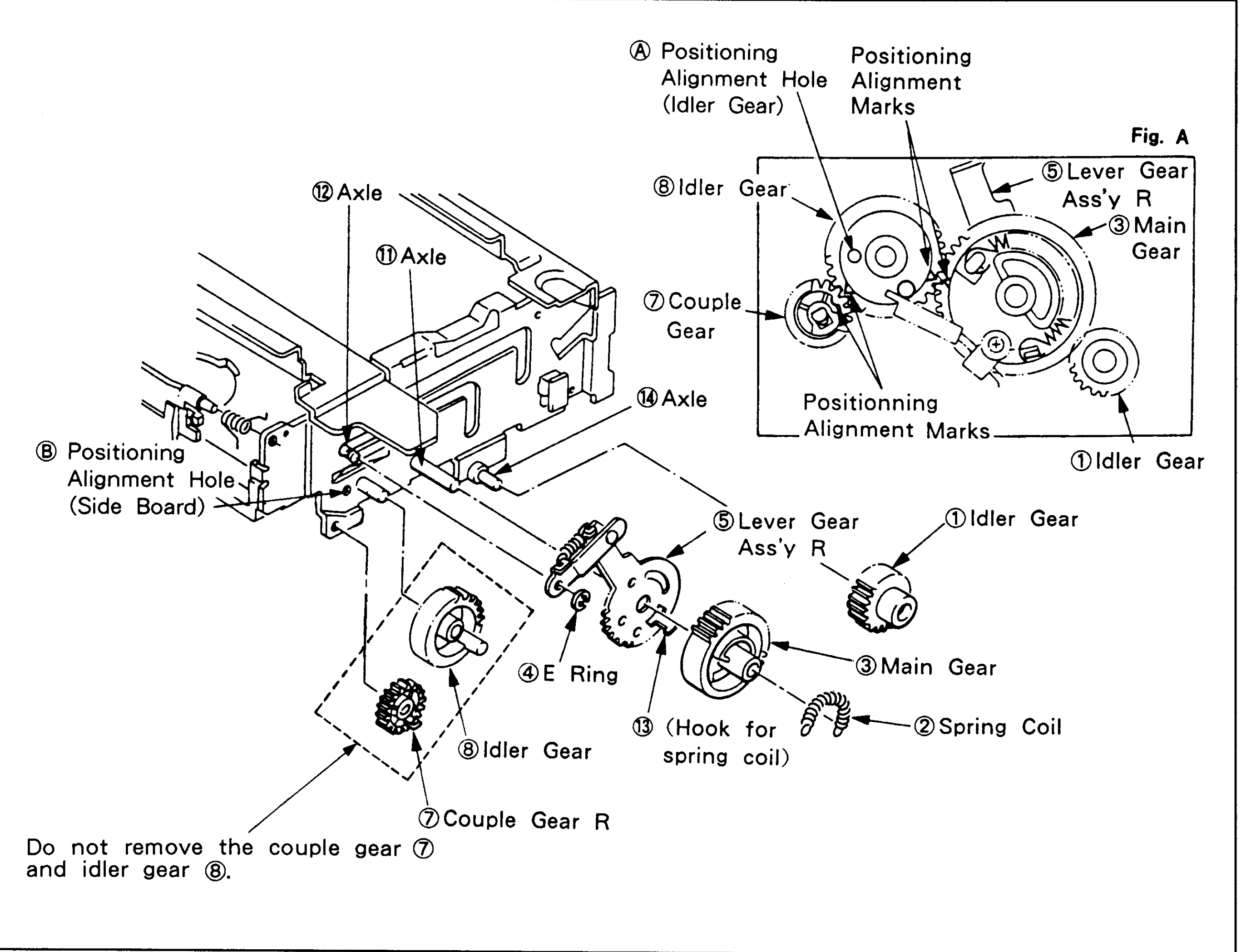
2-2-3. CASSETTE DRIVE GEAR (RIGHT) (See Fig. 2-2-3.)

1. Removal

1) Remove the COMPL CASSETTE MECHANISM and the GEAR BRACKET ASS'Y as instructed in 2-2-1. and 2-2-2., respectively.
2) Remove the IDLER GEAR ①.
3) Remove the SPRING COIL ②, then remove the MAIN GEAR ③.
4) Remove the E ring ④, then remove the LEVER GEAR ASS'Y R ⑤.

2. Remounting

1) Apply grease to gear parts that undergo friction.
2) Align the positioning alignment hole Ⓐ of IDLER GEAR ⑧ with the positioning alignment hole Ⓑ of SIDE BOARD.
3) Mount the LEVER GEAR ASS'Y R ⑤ onto the axles ⑪ and ⑫. Align with the IDLER GEAR ⑧ as shown in Fig. A.
4) Mount the E ring ④ onto the axle ⑫.
5) Mount the MAIN GEAR ③ onto the axle ⑪. When doing so, align with the IDLER GEAR ⑧ as shown in Fig. A.
6) Hook the SPRING COIL ② to the notch ⑬ in the MAIN GEAR ③ and the LEVER GEAR ASS'Y R.
7) Mount the IDLER GEAR ① onto the axle ⑭. When doing so, align with the MAIN GEAR as shown in Fig. A.
8) Mount the GEAR BRACKET ASS'Y and the COMPL CASSETTE MECHANISM as instructed in 2-2-2. and 2-2-1., respectively.


Ⓐ Positioning Alignment Hole (Idler Gear)
Positioning Alignment Marks
Fig. A
⑧ Idler Gear
⑤ Lever Gear Ass'y R
③ Main Gear
⑦ Couple Gear
Positionning Alignment Marks
① Idler Gear
⑫ Axle
⑪ Axle
⑭ Axle
Ⓑ Positioning Alignment Hole (Side Board)
⑤ Lever Gear Ass'y R
① Idler Gear
③ Main Gear
④ E Ring
⑬ (Hook for spring coil)
② Spring Coil
⑧ Idler Gear
⑦ Couple Gear R

Do not remove the couple gear ⑦ and idler gear ⑧.

Fig. 2-2-3. Cassette Drive Gears (Right Side)

2-2-4. CASSETTE DRIVE GEAR (LEFT) (See Fig. 2-2-4)

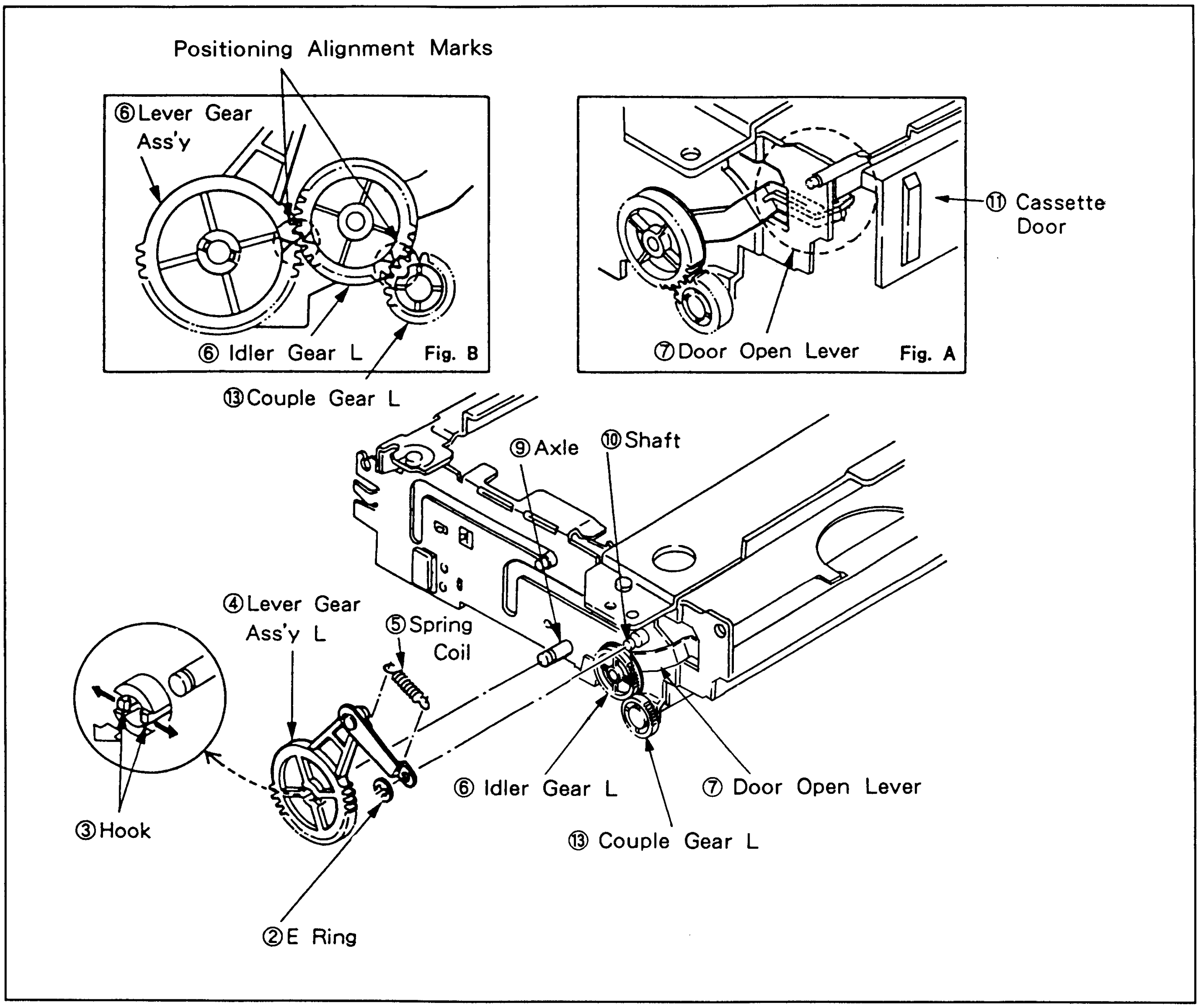
1. Removal

1) Remove the COMPL CASSETTE MECHANISM as instructed in 2-2-1.
2) Remove the E ring ②.
3) Open the hook ③, then remove the LEVER GEAR ASS'Y L ④. Take care not to open the hook ③ too much, otherwise it may get deformed or broken. If it does, replace it.
4) Remove the SPRING COIL ⑤ from the LEVER GEAR ASS'Y L ④.

2. Remounting

1) Apply grease to the axle ⑨ and shaft ⑩.
2) Align with the COUPLE GEAR L ⑬ and the IDLER GEAR L ⑥ as shown in Fig B.
3) Hook the SPRING COIL ⑤ to the LEVER GEAR ASS'Y L ④.
4) Mount the LEVER GEAR ASS'Y L ④ onto the axle ⑨ and the shaft ⑩. Align with the IDLER GEAR L ⑥ as shown in Fig. B.
5) Mount the COMPL CASSETTE MECHANISM onto the chassis as instructed in 2-2-1.

Note: The end of the DOOR OPEN LEVER ⑦ leans against the front side of the CASSETTE DOOR ⑪ as shown in Fig. A.



Positioning Alignment Marks
⑥Lever Gear Ass'y
⑥ Idler Gear L
⑬Couple Gear L
Fig. B
⑪ Cassette Door
⑦Door Open Lever
Fig. A
⑨Axle
⑩Shaft
④Lever Gear Ass'y L
⑤Spring Coil
③Hook
⑥ Idler Gear L
⑦ Door Open Lever
⑬ Couple Gear L
②E Ring

Fig. 2-2-4. Cassette Drive Gears (Left Side)

2-2-5. FL START SWITCH (See Fig. 2-2-5.)

1. Removal

1) Remove the COMPL CASSETTE MECHANISM as instructed in 2-2-1.
2) Remove the screw ①.
3) Remove the lead wire of the FL START SWITCH ②.

2. Remounting

1) Solder the lead wire to the FL START SWITCH ② terminal.
2) Align the FL START SWITCH ② protuberance to the hole ⑤, then mount it onto the GEAR BRACKET ASS'Y ③ with the screw ①. Do it so that the FL START SWITCH ② is turned ON by holding the pin ④ of IDLER GEAR in the EJECT completed mode.
3) Mount the COMPL CASSETTE MECHANISM as instructed in 2-2-1.

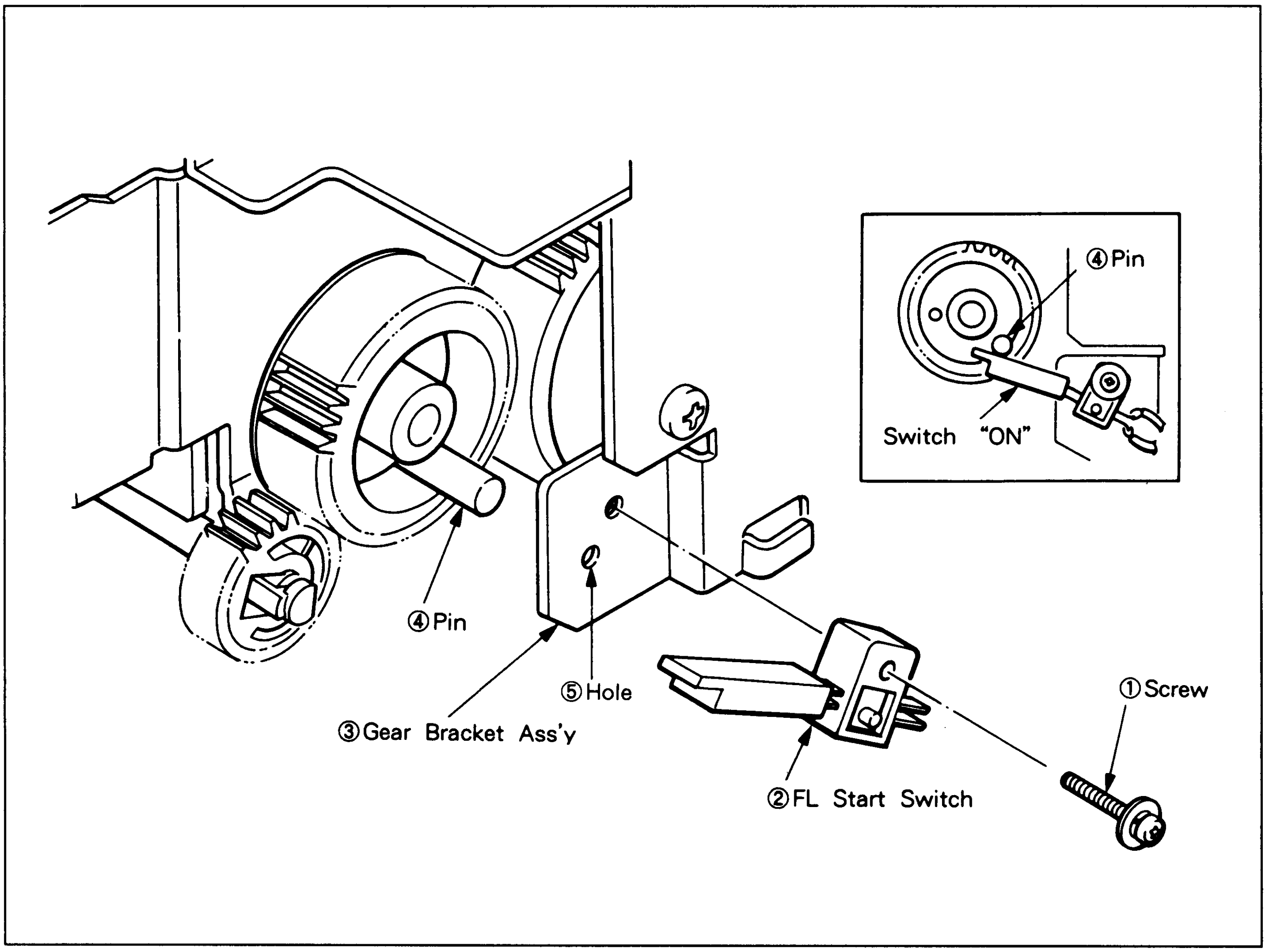

④Pin
Switch "ON"
④Pin
⑤Hole
③Gear Bracket Ass'y
②FL Start Switch
①Screw

Fig. 2-2-5. FL Start Switch

2-2-6. T-TOP SENSOR, T-END SENSOR (See Fig. 2-2-6.)

1. Removal

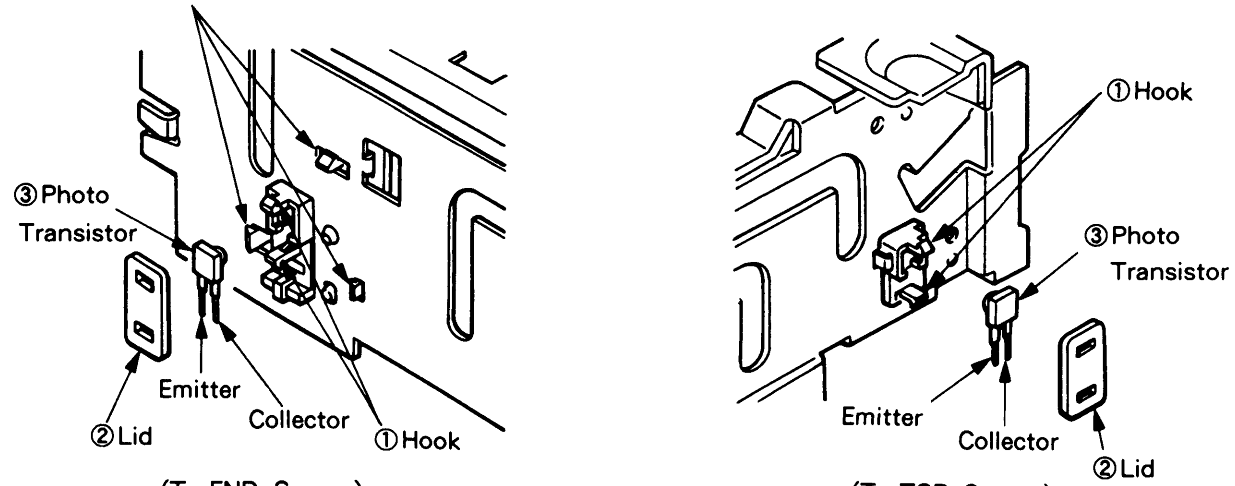
1) Remove the COMPL CASSETTE MECHANISM as instructed in 2-2-1.
2) When removing the T-TOP SENSOR, remove the GEAR BRACKET ASS'Y as instructed in 2-2-2.
3) Unhook the hook ① as instructed in Fig. A, then remove the LID ②. Take care not to push the hook ① too much, otherwise it may be deformed or broken.
4) Remove the photo transistors ③, then remove the lead wires.

Note: Mounting position of the transistor holder on the T-END SENSOR side is precisely adjusted at the factory, so never remove it from the COMPL CASSETTE MECHANISM.

2. Remounting

1) Solder the brown lead wire to the emitter side, and the red lead wire to the collector side of the T-TOP SENSOR photo transistor ③.
   Solder the orange lead wire to the emitter side, and the yellow lead wire to the collector side of the T-END SENSOR photo transistor.
2) Mount the photo transistors ③ onto their respective holders.
3) Mount the LID ② and fix it with the hook ①.
4) Mount the GEAR BRACKET ASS'Y as instructed in 2-2-2.
5) Mount the COMPL CASSETTE MECHANISM as instructed in 2-2-1.

Do not remove the holder from the compl cassette mechanism.



(T • END Sensor)

(T • TOP Sensor)

Fig. A

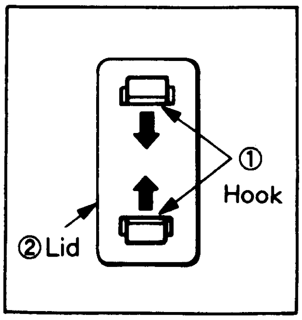


Fig. 2-2-6. T TOP Sensor & T END Sensor

2-3. COMPL HOLDER MOTOR (LOADING MOTOR BLOCK)

2-3-1. COMPL HOLDER MOTOR

1. Removal

1) Remove the PRE-AMP UNIT and the PRE-AMP BRACKET as instructed in 2-1.
2) Remove the COMPL CASSETTE MECHANISM as instructed in 2-2-1.
3) Remove the two screws ① and the other one ⑩, then remove the COMPL HOLDER MOTOR ②. (See Fig. 2-3-1.)

2. Remounting

1) Set the mechanism chassis to the INITIAL mode. In this mode, look at the mechanism chassis INITIAL mode positioning alignment holes ③ just from above and align the MAIN CAM ④ and MODE CAM ⑤ INITIAL mode positioning alignment holes as shown in Fig. A.
2) Set the COMPL HOLDER MOTOR ② to the INITIAL mode with the mode selector (VHJ-0050). In this position, the FRONT LOADING GEAR △ positioning alignment mark ⑥ is aligned with the MOTOR HOLDER INITIAL mode positioning alignment mark ⑦. (See Fig. B.)
3) Align the ROTARY SWITCH (mode detector switch) ⑧ with the INITIAL mode positioning alignment mark ⑨. (See Fig. C.)
4) Line up COMPL HOLDER MOTOR ② with PROTUBERANCE ⑪ and POSITIONING ALIGNMENT HOLE ⑫, and attach with two screws ① and one screw ⑩. (Refer to Fig. 2-3-1.)
5) Mount the COMPL CASSETTE MECHANISM as instructed in 2-2-1.
6) Mount the PRE-AMP UNIT and the PRE-AMP BRACKET as instructed in 2-1.

Note: Normal mechanism operation cannot be achieved if INITIAL mode positioning of the MAIN CAM ④, the MODE CAM ⑤ and the ROTARY SWITCH (mode detector switch) ⑧ are not performed precisely.

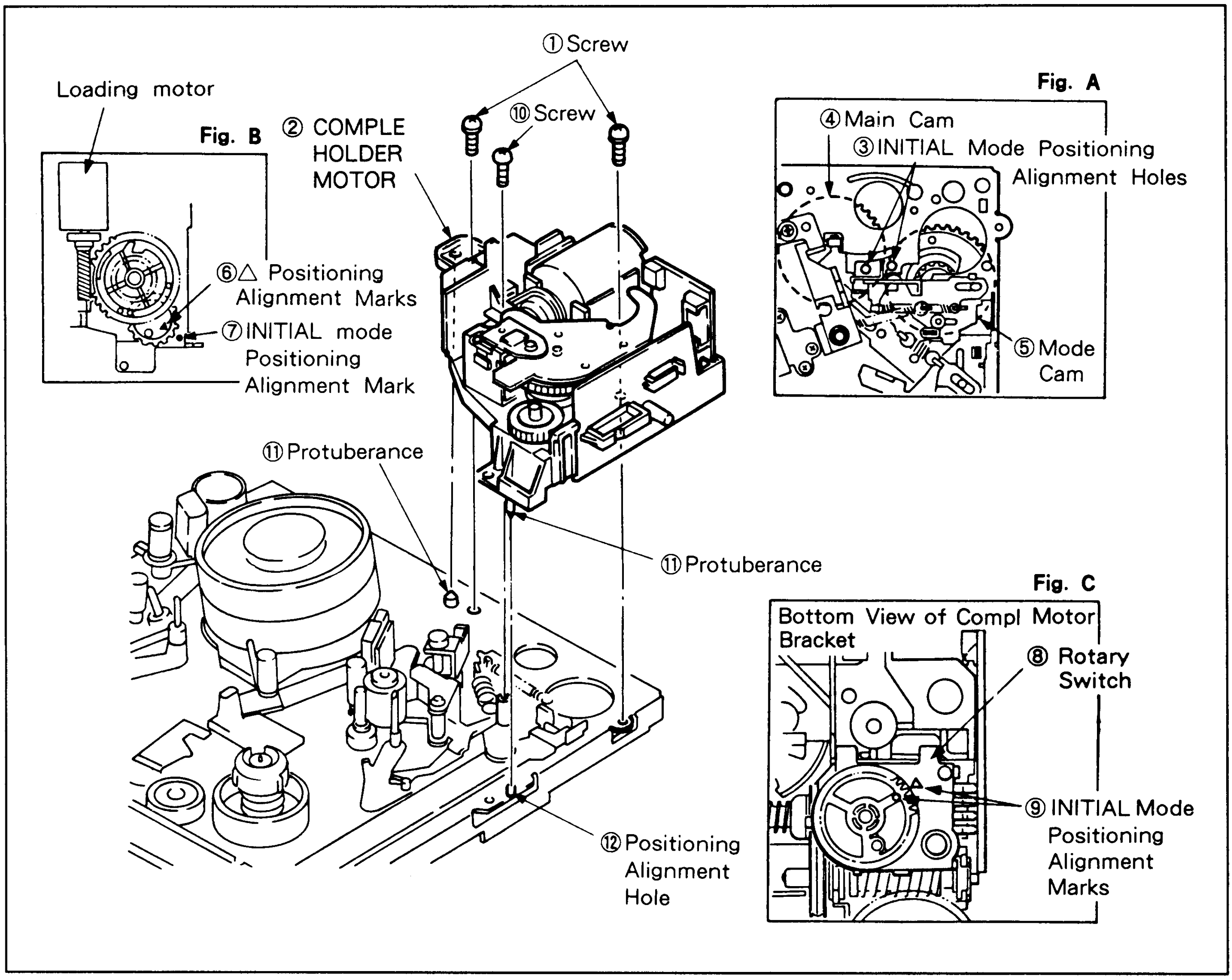

①Screw
Loading motor
Fig. B
② COMPLE HOLDER MOTOR
⑩Screw
Fig. A
④Main Cam
③INITIAL Mode Positioning Alignment Holes
⑥△ Positioning Alignment Marks
⑦INITIAL mode Positioning Alignment Mark
⑤Mode Cam
⑪Protuberance
⑪Protuberance
Fig. C
Bottom View of Compl Motor Bracket
⑧ Rotary Switch
⑨INITIAL Mode Positioning Alignment Marks
⑫Positioning Alignment Hole

Fig. 2-3-1. Compl Holder Motor

2-3-2. LOADING MOTOR (See Fig. 2-3-2.)

1. Removal

LOADING MOTOR can be replaced after LOADING MOTOR BLOCK unit has been removed by referring to 2-3-1. The 1991 version of the mechanism allows LOADING MOTOR itself to be replaced without removing CASSETTE HOLDER BLOCK and LOADING MOTOR BLOCK. The following describes this procedure.

1) Use MODE SELECTOR (VHJ-0050) to set the mechanism to the INITIAL mode.
2) Remove the connector for the DEW SENSOR connected to the MC-3 board ①.
3) Remove the three screws ② and remove the HOLDER BRACKET ④ with the FRONT WORM ASS'Y ③ still attached.
4) Remove the DAMPER ⑥ attached to the pulley of the LOADING MOTOR ⑤.
5) Remove the FRONT HELICAL GEAR ⑦ and WASHER ⑧.
6) Remove soldered LEAD WIRE from the terminal of LOADING MOTOR ⑤.
7) Remove the LOADING BELT ⑨.
8) Remove the LOADING MOTOR ⑤ by lifting up from the back terminal side.

2. Remounting

Before attaching the LOADING MOTOR ⑤ to the MOTOR HOLDER ⑩, confirm the DAMPER ⑪ and DAMPER ⑫ shown in Fig. 2-3-2. are in the proper position on the MOTOR HOLDER ⑩.

1) The LOADING MOTOR ⑤ puts the PROTUBERANCE ㉓ in the slit ㉔ of the MOTOR HOLDER ⑩.
   Further, mount the tap hole ⑬ at two points of the front pulley side so that the it is secured to the PROTUBERANCE ⑭ of the MOTOR HOLDER at two points.
2) Solder the lead wire from the MC-3 board to the LOADING MOTOR ⑤ terminal. (Solder the red lead wire to the positive terminal side.)
3) Hang the LOADING BELT ⑨ on the pulley.
4) After hanging the LOADING BELT ⑨ on the pulley, confirm that the mechanism unit is in the INITIAL mode. The INITIAL mode is indicated by Fig. A of Fig. 2-3-2., and is the position in which INITIAL mode positioning alignment holes of the MAIN CAM ⑮ and MODE CAM ⑯ are lined up with the THROUGH HOLE ⑰ of the MOTOR HOLDER. If the INITIAL mode is not selected, adjust with the MODE SELECTOR (VHJ-0050).
5) As shown in Fig. B, confirm the positions of the △ INITIAL mode positioning alignment mark ⑱ on the FRONT LOAD GEAR and INITIAL mode positioning alignment mark ⑲ position of the MOTOR HOLDER and the position relationship of the RACK ⑳.
6) Apply a light coat of grease to the entire sides of the AXLE ㉑ and FRONT HELICAL GEAR ⑦.
7) Attach the FRONT HELICAL GEAR ⑦ and WASHER ⑧ to the AXLE ㉑. As shown in Fig. C, the FRONT HELICAL GEAR ⑦ is attached so that the indent on the side is inside PIN ㉒ of the FRONT LEVER ASS'Y.
8) Attach the DAMPER ⑥ to the LOADING MOTOR ⑤ pulley.
9) The HOLDER BRACKET ④ is attached by engaging the FRONT WORM ASS'Y ③ with the LOADING MOTOR ⑤ pulley, and held in place with three screws ②.
10) Attach the connector of the DEW SENSOR ㉕ to the MC-3 board ① and return the mechanism to the eject completion using MODE SELECTOR.

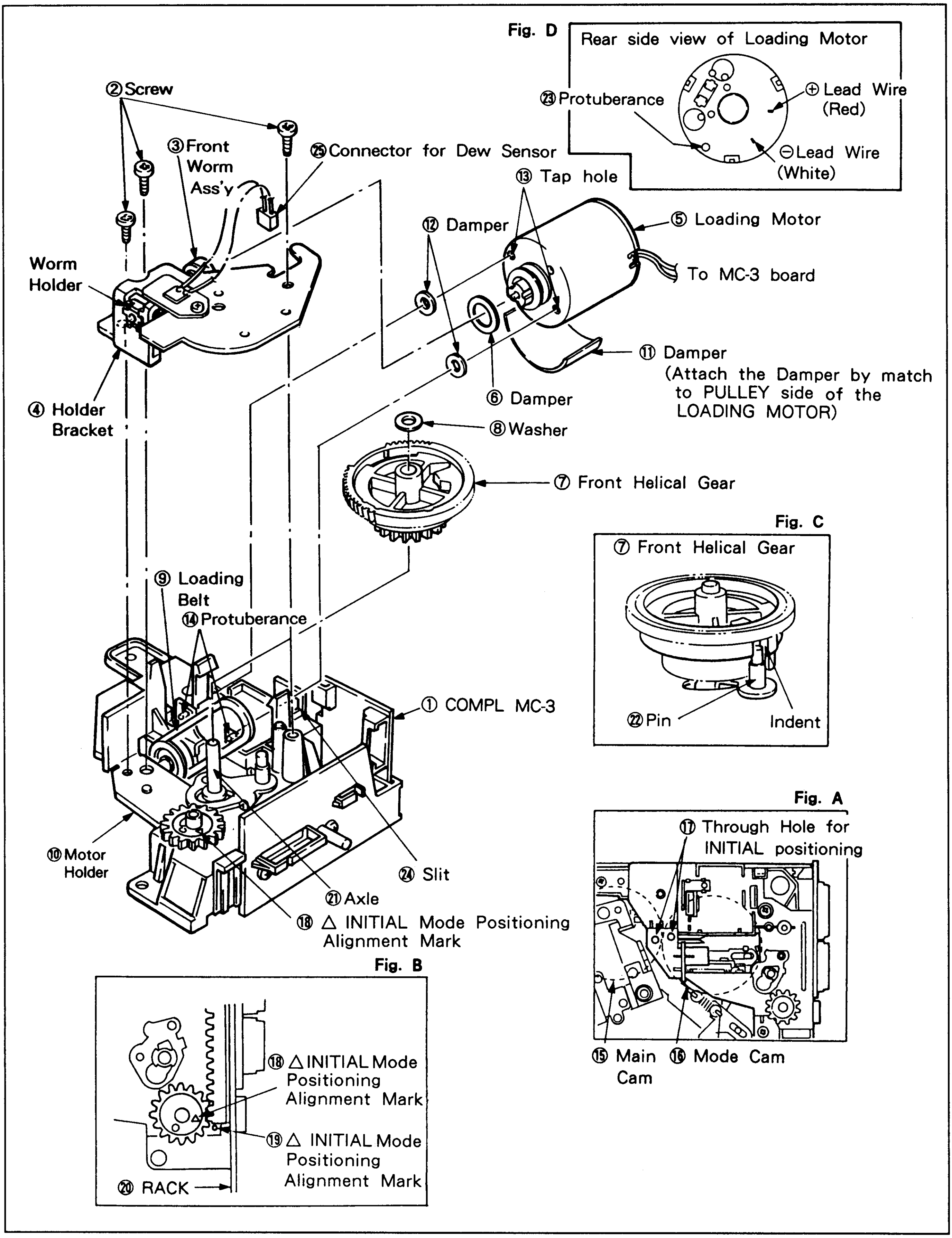


Fig. D
Rear side view of Loading Motor
㉓ Protuberance
⊕ Lead Wire (Red)
⊖ Lead Wire (White)
② Screw
③ Front Worm Ass'y
㉕ Connector for Dew Sensor
⑬ Tap hole
Worm Holder
⑫ Damper
⑤ Loading Motor
To MC-3 board
⑪ Damper
(Attach the Damper by match to PULLEY side of the LOADING MOTOR)
④ Holder Bracket
⑥ Damper
⑧ Washer
⑦ Front Helical Gear
Fig. C
⑦ Front Helical Gear
㉒ Pin
Indent
⑨ Loading Belt
⑭ Protuberance
① COMPL MC-3
Fig. A
⑰ Through Hole for INITIAL positioning
⑩ Motor Holder
㉔ Slit
㉑ Axle
⑱ △ INITIAL Mode Positioning Alignment Mark
⑮ Main Cam
⑯ Mode Cam
Fig. B
⑱ △ INITIAL Mode Positioning Alignment Mark
⑲ △ INITIAL Mode Positioning Alignment Mark
⑳ RACK

Fig. 2-3-2. Loading Motor

2-4. TAPE LOADING MECHANISM

2-4-1. MAIN PARTS OF THE TAPE LOADING MECHANISM (See Fig. 2-4-1.)

1. Removal

1) Remove connectors from the DRUM MOTOR board (SV-5).
2) Remove the three screws ①, then remove the REINFORCE BRACKET ②.
3) Remove the two special washers ③, then remove the LOAD RACK ④.
4) Remove the special washer ⑤, then remove the CAM LOAD LEVER ASS'Y ⑥.
5) Remove the special washer ⑦, then remove the MAIN CAM ⑧.
6) Unhook the LOAD GEAR T hook ⑩, then remove the LOAD GEAR T ⑨ as shown in Fig. A, with the SPRING COIL ⑪ and the LOAD LEVER ASS'Y T ⑫ attached to it.
7) Unhook the LOAD GEAR S hook ⑭, then remove the LOAD GEAR S ⑬ as shown in Fig. B, with the SPRING COIL ⑮ and the LOAD LEVER ASS'Y S ⑯ attached to it.

Note: Take care not to open the LOAD GEAR hooks too much, otherwise they may be deformed or broken. If they are, replace them.

2. Remounting

1) Apply grease to the hole ⑰ of the LOAD LEVER ASS'Y S ⑯, as shown in Fig. B.
2) Apply grease to the hole ㉒ of the LOAD LEVER ASS'Y T ⑫ as shown in Fig. A, and to the sections of the LOAD GEAR T ⑨ as indicated with an arrow in Fig. C.
3) Apply grease to GROOVE 1, GROOVE 2 and to the outer side of the MAIN CAM ⑧, shown in Fig. E.
4) Apply grease to the three oval holes of the LOAD RACK ④ as shown in Fig. D.
5) Apply grease to the outer surface of axles ⑲, ⑳, ㉖ and ㉘.
6) After assembling as shown in Fig. B, mount the LOAD GEAR S ⑬ onto the axle ⑲. Insert the ROLLER BASE S pin ⑱ into the hole ⑰ of the LOAD LEVER ASS'Y S.
7) After assembling as shown in Fig. A, mount the LOAD GEAR T ⑨ onto the axle ⑳. When doing so, align the INITIAL mode positioning alignment holes ㉑ of the LOAD GEAR S ⑬ and the LOAD GEAR T ⑨ to the INITIAL mode position. Insert the ROLLER BASE T pin ㉓ into the hole ㉒ of the LOAD LEVER ASS'Y T ⑫.
8) Mount the MAIN CAM ⑧ onto the axle ㉖. At that time, make sure that the INITIAL mode positioning alignment holes ㉕ of the MAIN CAM ⑧ and the MODE CAM ㉔ match the INITIAL mode positioning alignment holes ㉞ of the MECHANISM CHASSIS. Also check to be sure that the pin ㉗ of the CAM PINCH LEVER ASS'Y is put in the GROOVE 1 of the MAIN CAM as shown in Fig. E.
9) Mount the special washer ⑦ onto the axle ㉖.
10) Mount the CAM LOAD LEVER ASS'Y ⑥ onto the axle ㉘. Insert the pin ㉙ into the MAIN CAM GROOVE 2 as shown in Fig. E.
11) Mount the special washer ⑤ onto the axle ㉘.
12) Set the INITIAL mode positioning alignment marks ㉚ of the LOAD RACK ④ and the LOAD GEAR T ⑨ to the INITIAL mode position, and mount onto the two axles ㉛. Insert the CAM LOAD LEVER ASS'Y pin ㉝ into the hole ㉜.
13) Mount the two special washers ③ onto the two axles ㉛.
14) Mount the REINFORCE BRACKET ② with the three screws ①.
15) Insert the connector into the DRUM MOTOR board (SV-5).
16) Confirm that loading and unloading are performed smoothly.

Note: Be sure to perform INITIAL mode positioning of cams and gears precisely.

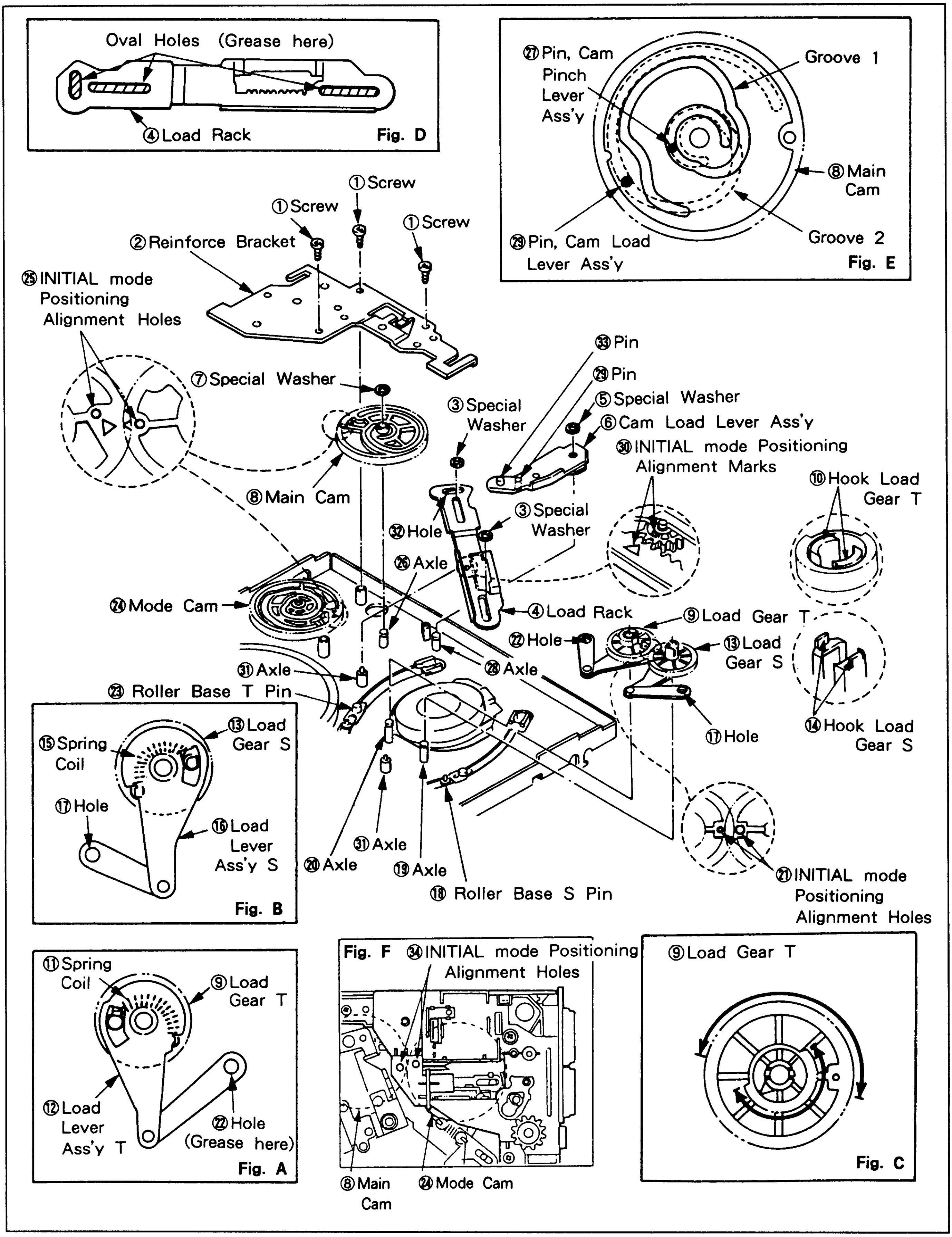

Oval Holes (Grease here)
④Load Rack
Fig. D
㉗Pin, Cam Pinch Lever Ass'y
Groove 1
⑧Main Cam
㉙Pin, Cam Load Lever Ass'y
Groove 2
Fig. E
①Screw
①Screw
①Screw
②Reinforce Bracket
㉕INITIAL mode Positioning Alignment Holes
⑦Special Washer
⑧Main Cam
㉝Pin
㉙Pin
⑤Special Washer
③Special Washer
⑥Cam Load Lever Ass'y
㉚INITIAL mode Positioning Alignment Marks
⑩Hook Load Gear T
㉜Hole
③Special Washer
㉖Axle
㉔Mode Cam
④Load Rack
⑨Load Gear T
㉒Hole
⑬Load Gear S
㉘Axle
㉛Axle
㉓ Roller Base T Pin
⑰Hole
⑭Hook Load Gear S
⑮Spring Coil
⑬Load Gear S
⑰Hole
⑯Load Lever Ass'y S
Fig. B
⑳Axle
㉛Axle
⑲Axle
⑱ Roller Base S Pin
㉑INITIAL mode Positioning Alignment Holes
⑪Spring Coil
⑨Load Gear T
⑫Load Lever Ass'y T
㉒Hole (Grease here)
Fig. A
Fig. F
㉞INITIAL mode Positioning Alignment Holes
⑧Main Cam
㉔Mode Cam
⑨Load Gear T
Fig. C

Fig. 2-4-1. Loading Mechanism Main Parts

2-4-2. MODE CAM (See Fig. 2-4-2.)

1. Removal

1) Set the INITIAL mode with the mode selector (VHJ-0050).
2) Remove the REINFORCE BRACKET as instructed in 2-4-1.
3) Remove the two special washers ①, then remove the CAM PLATE SLIDE ASS'Y ②.
4) Remove the MODE CAM ③.

2. Remounting

1) Referring to 2-4-1., confirm that the MAIN CAM is in the INITIAL mode position.
2) In case the MAIN CAM is misplaced, use the mode selector (VHJ-0050) to align the MAIN CAM positioning hole with the chassis INITIAL mode position hole (refer to 2-4-1. for the INITIAL mode position). Since the ROTARY SWITCH (mode detector switch) does not rotate, the mode selector indicator lamp will not show the correct mode.
3) Align the ROTARY SWITCH (mode detector switch) ④ with the INITIAL mode positioning alignment mark ⑤ as shown in Fig. A.
4) Mount the MODE CAM ③ onto the axle ⑥. Do it so that the SLIDE CAM ASS'Y pin ⑪ is placed in the GROOVE 3 as shown in Fig. B.
5) Mount the CAM PLATE SLIDE ASS'Y ② onto the axles ⑥ and ⑦. Do it so that the pin ⑧ gets into the GROOVE 4 of the MODE CAM as shown in Fig. B, and the point of the bent-up part ⑨ into the ACT PLATE SLIDE ASS'Y hole ⑩.
6) Mount the two special washers ① onto the axles ⑥ and ⑦.
7) Mount the REINFORCE BRACKET as instructed in 2-4-1.

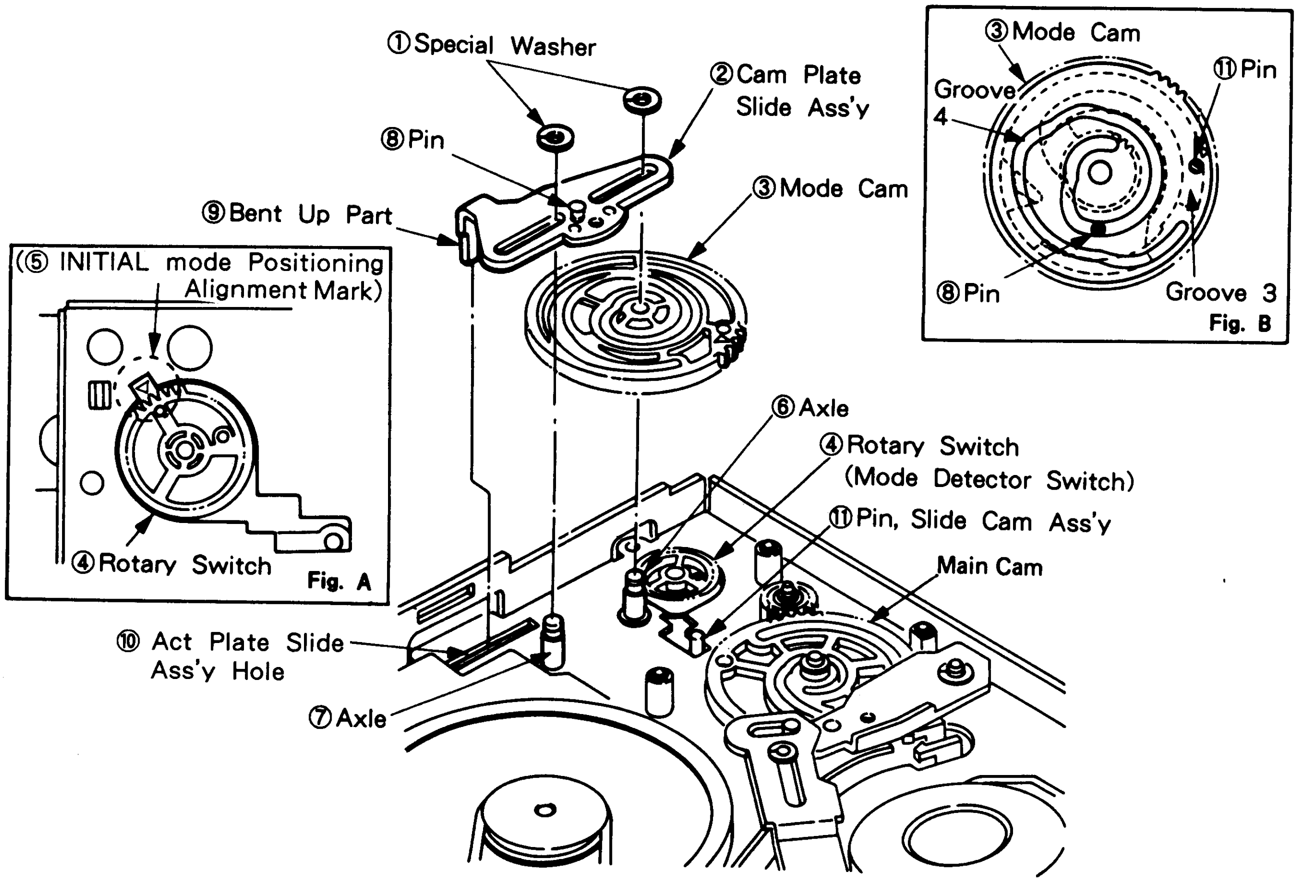

①Special Washer
②Cam Plate Slide Ass'y
⑧Pin
③Mode Cam
⑨Bent Up Part
(⑤ INITIAL mode Positioning Alignment Mark)
④Rotary Switch
Fig. A
⑩ Act Plate Slide Ass'y Hole
⑦Axle
⑥Axle
④Rotary Switch (Mode Detector Switch)
⑪Pin, Slide Cam Ass'y
Main Cam
③Mode Cam
Groove 4
⑪Pin
⑧Pin
Groove 3
Fig. B

Fig. 2-4-2. Mode Cam

2-5. COMPL HEAD BRACKET (ACE HEAD) (See Fig. 2-5-1.)

1. Removal

1) Remove the special nut ②.
2) Remove the SLEEVE ③, the COMPL HEAD BRACKET ① and the SPRING COIL ④, in that order.

Note: Take care not to scratch or soil the ACE head surface.

2. Remounting

1) Apply grease to the axle ⑥ as shown in Fig. A.
2) Apply grease to the spot where the COMPL HEAD BRACKET ① makes contact with the STOPPER ⑦.
3) Mount the SPRING COIL ④ and the COMPL HEAD BRACKET ①, in that order, onto the axle ⑥. Hook one end of the SPRING COIL ④ to the notch ⑤, and the other end to the COMPL HEAD BRACKET, so that the COMPL HEAD BRACKET is pressed against the STOPPER ⑦.
4) Mount the special nut ② onto the axle ⑥ through the SLEEVE ③.
5) Clean the ACE head surface with a chamois leather moistened with methyl alcohol.
6) Perform ACE head adjustment as instructed in 5-4.

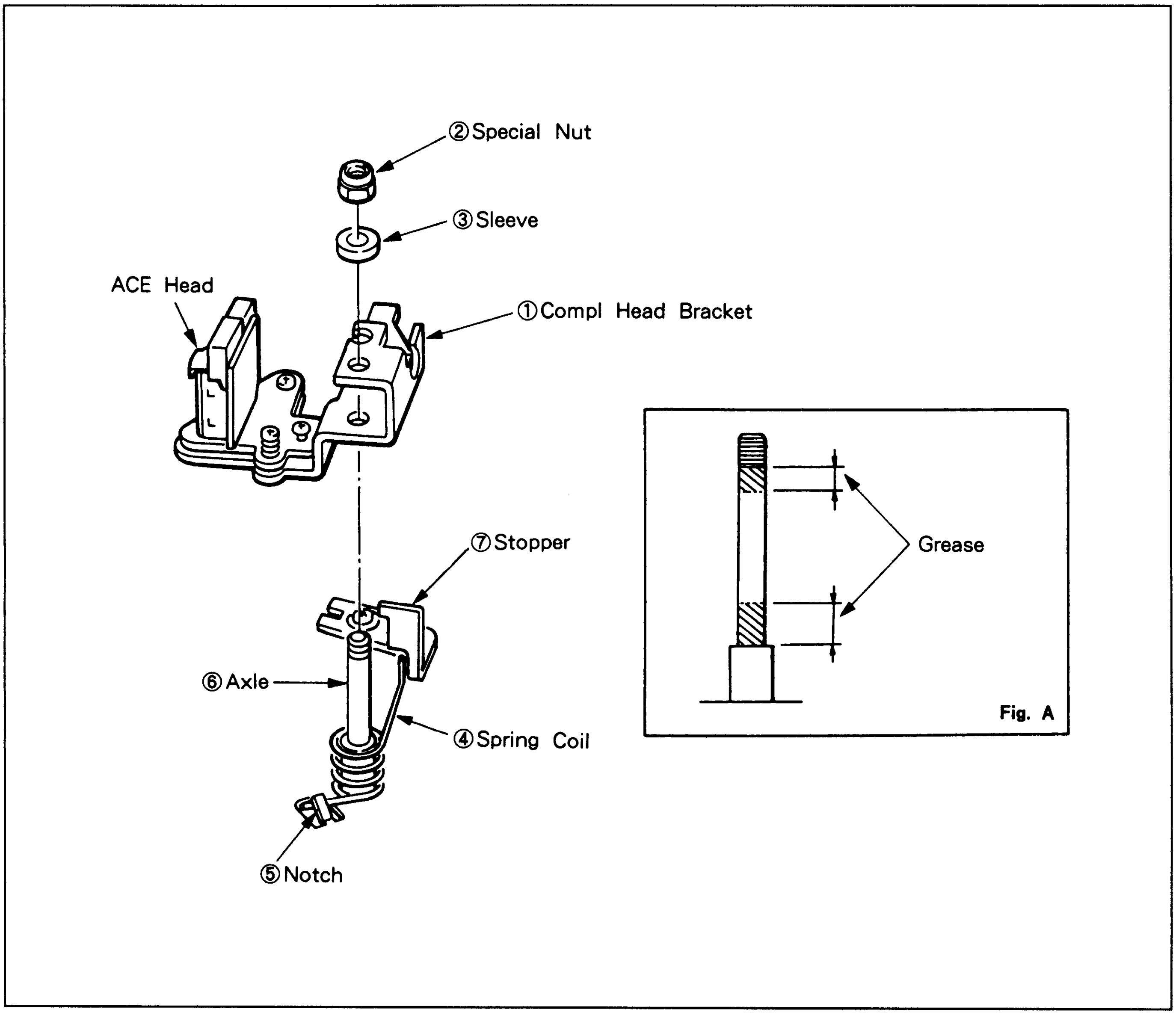

②Special Nut
③Sleeve
ACE Head
①Compl Head Bracket
⑦Stopper
⑥Axle
④Spring Coil
⑤Notch
Grease
Fig. A

Fig. 2-5-1. Compl Head Bracket (ACE Head)

2-6. PINCH ROLLER PRESSURE MECHANISM (See Fig. 2-6-1.)

1. Removal

1) Remove the COMPL CASSETTE MECHANISM as instructed in 2-2-1.
2) Remove the COMPL HEAD BRACKET as instructed in 2-5.
3) Remove the PINCH SPRING COIL ①.
4) Remove the special washer ②, then remove the PINCH LEVER ASS'Y ③.
5) Remove the REV GUIDE LEVER SPRING COIL ④.
6) Remove REV GUIDE LEVER ASS'Y ⑥ from the hook ⑤ of the plastic bearing on the bottom side. Use a jig VHJ-0073 shown in Fig. 2-6-2 to widen the hook of the plastic bearing. By so doing, the above removal of the REV GUIDE LEVER ASS'Y ⑥ can be made more easily. Care should be taken to avoid pushing the jig VHJ-0073 too much. Pushing it too hard may damage the hook in an extreme case.
7) Remove the SLIDE BRAKE SPRING COIL ⑦.
8) Remove the special washer ⑧, then remove the PINCH CAM LEVER ASS'Y ⑨.
9) Remove the ACT PINCH SLIDE ASS'Y ⑩.

Note: If the hook ⑤ of the plastic bearing is damaged, reference should be made to Section 3. "Method of Repairing the Bearing Section of REV GUIDE LEVER ASS'Y".

2. Remounting

1) Apply grease to pins ⑫/⑬ and axles ⑯/⑱.
2) Apply grease to the ACT PINCH SLIDE ASS'Y pin ⑰.
3) Set the INITIAL mode with the mode selector (VHJ-0050).
4) Mount the ACT PINCH SLIDE ASS'Y ⑩ onto pins ⑫ and ⑬.
5) Insert the pin ⑭ of the PINCH CAM LEVER ASS'Y ⑨ into the MAIN CAM ⑪ GROOVE 1, and mount onto the axle ⑯ while inserting the ACT PINCH SLIDE ASS'Y pin ⑰ of the ACT PINCH SLIDE ASS'Y into the hole ⑮.
6) Mount the special washer ⑧ onto the axle ⑯.
7) Hook the SLIDE BRAKE SPRING COIL ⑦ to the plastic pin ⑲.
8) Mount the REV GUIDE LEVER ASS'Y ⑥ to the plastic molding bearing, then fix it with the hook ⑤ at the bottom.
9) Hook the REV GUIDE LEVER SPRING COIL ④.
10) Mount the PINCH LEVER ASS'Y ③ to the axle ⑱.
11) Mount the special washer ② to the axle ⑱.
12) Hook the PINCH SPRING COIL ① between the ACT PINCH SLIDE ASS'Y ⑩ and the PINCH LEVER ASS'Y ③.
13) Mount the COMPL HEAD BRACKET as instructed in 2-5.
14) Mount the COMPL CASSETTE MECHANISM as instructed in 2-2-1.
15) Perform ACE head adjustment as instructed in 5-4.

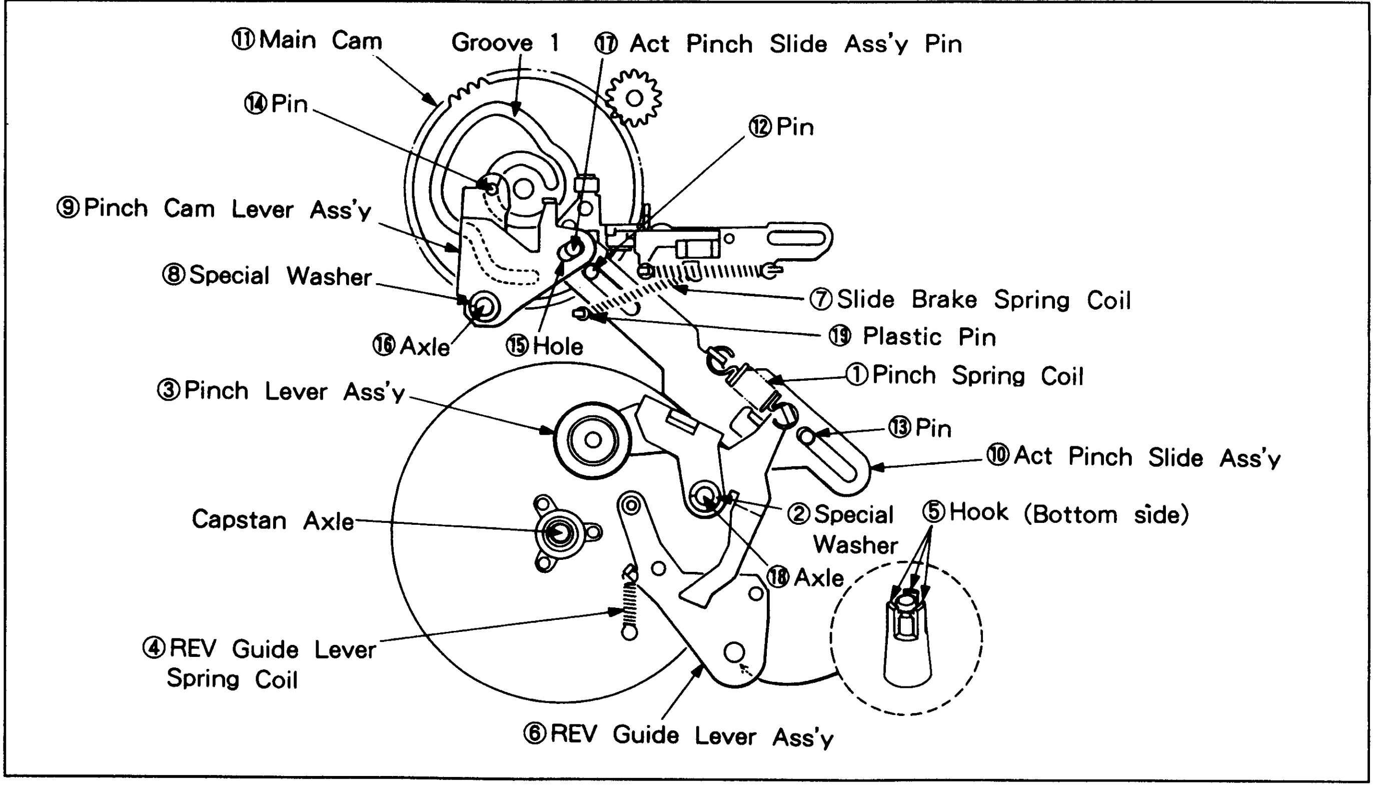
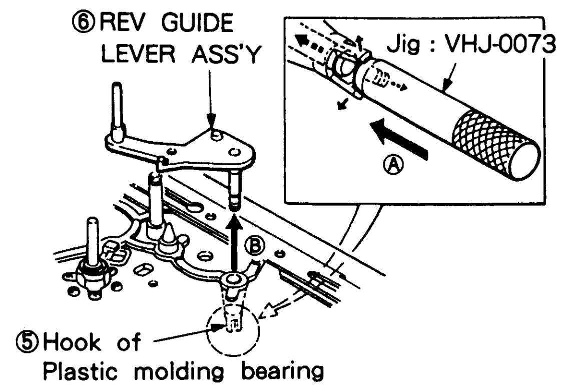

⑪Main Cam
Groove 1
⑰ Act Pinch Slide Ass'y Pin
⑭Pin
⑫Pin
⑨Pinch Cam Lever Ass'y
⑧Special Washer
⑦Slide Brake Spring Coil
⑲ Plastic Pin
⑯Axle
⑮Hole
①Pinch Spring Coil
③Pinch Lever Ass'y
⑬Pin
⑩Act Pinch Slide Ass'y
Capstan Axle
②Special Washer
⑤Hook (Bottom side)
⑱Axle
④REV Guide Lever Spring Coil
⑥REV Guide Lever Ass'y

Fig. 2-6-1. Pinch Roller Pressure Mechanism


⑥REV GUIDE LEVER ASS'Y
Jig : VHJ-0073
Ⓐ
Ⓑ
⑤Hook of Plastic molding bearing

Remove REV GUIDE LEVER ASS'Y in the direction of arrow Ⓑ, pushing VHJ-0073 slightly in the direction of arrow Ⓐ.
Be careful not to damage the hook by pushing too much.

Fig. 2-6-2. **Method of Using the Jig VHJ-0073**

3. Method of Repairing the Bearing Section of REV GUIDE LEVER ASS'Y

If the hook of the plastic molding bearing is damaged in the process of removing the REV GUIDE LEVER ASS'Y, proceed with the repair as follows :

1) Scrape the broken hook of the bearing section with a cutter knife and flatten it.
2) Insert the REV GUIDE LEVER ASS'Y in the bearing and fit a stopper washer in. The special washer to be used must be Part No. 411 109 1605. This stop washer (part No. 411 109 1605) is the same as that used on SUPPLY REEL ASS'Y or TAKE-UP REEL ASS'Y.

Remove the REV GUIDE LEVER ASS'Y toward an arrow B while pushing the jig VHJ-0073 lightly in the direction of an arrow.
Pushing the jig VHJ-0073 too much may cause hook breakage. Therefore, care should be taken.

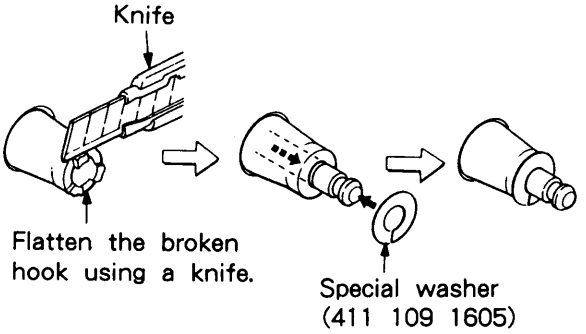

Knife
Flatten the broken hook using a knife.
Special washer (411 109 1605)

Fig. 2-6-3. **Method of Repairing the Bearing Section of the REV GUIDE LEVER ASSEMBLY**

2-7. BRAKE MECHANISM

2-7-1. SUB TAKE-UP BRAKE ASS'Y (See Fig. 2-7-1.)

1. Removal

1) Remove the COMPL CASSETTE MECHANISM as instructed in 2-2-1.
2) Remove the SPRING COIL ①.
3) While pushing the hook ② in the direction of arrow, remove the SUB TAKE-UP BRAKE ASS'Y ③.

2. Remounting

1) Mount the SUB TAKE-UP BRAKE ASS'Y ③ onto the pin ④. Confirm that the hook ② is firmly hooked to the chassis.
2) Fit the SPRING COIL between hooks ⑤ and ⑥.
3) Mount the COMPL CASSETTE MECHANISM as instructed in 2-2-1.

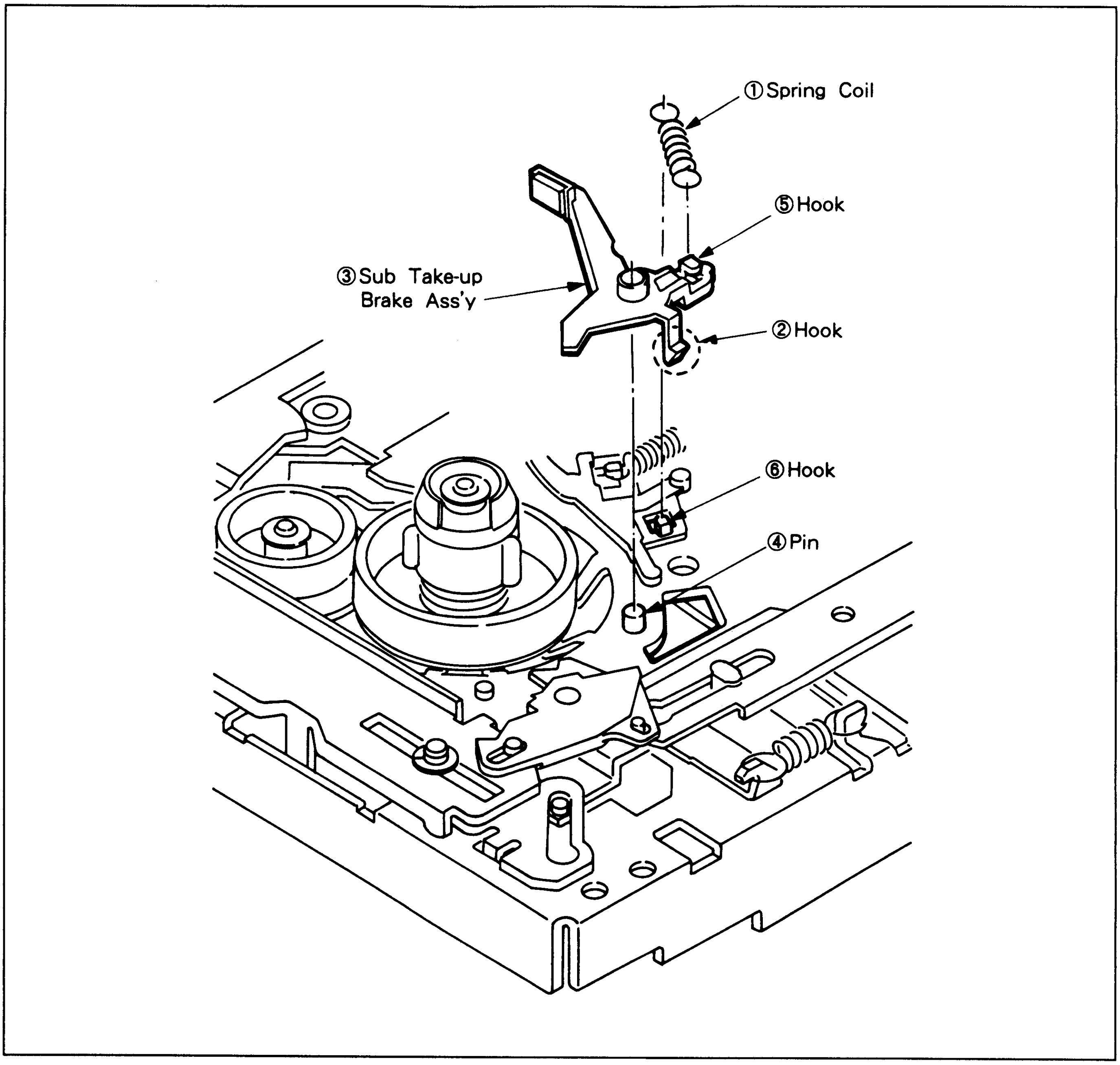

①Spring Coil
⑤Hook
③Sub Take-up Brake Ass'y
②Hook
⑥Hook
④Pin

Fig. 2-7-1. Sub Take-up Brake Ass'y

2-7-2. SUPPLY BRAKE ASS'Y AND TAKE-UP BRAKE ASS'Y (See Fig. 2-7-2.)

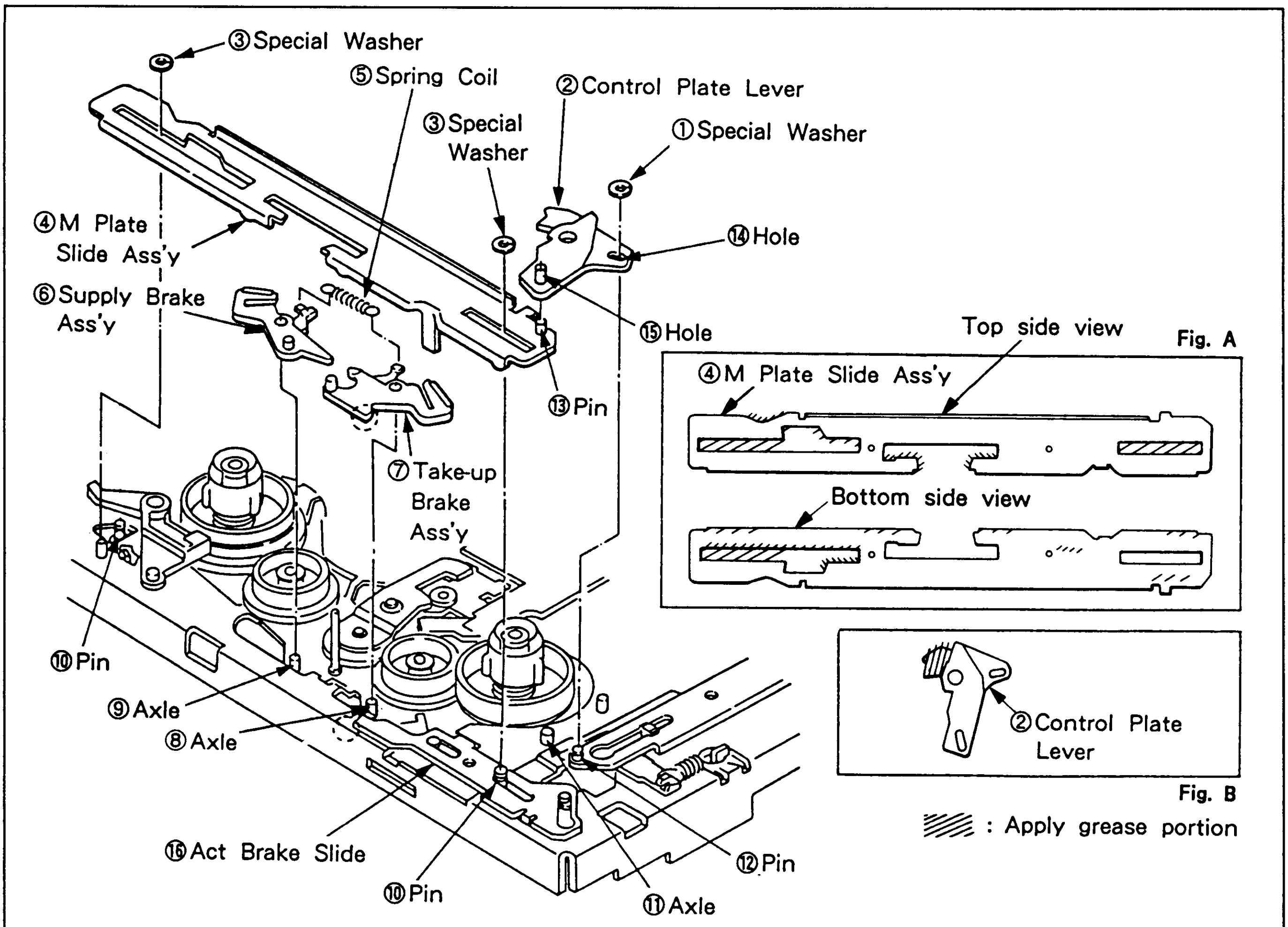
1. Removal

1) Remove the COMPL CASSETTE MECHANISM as instructed in 2-2-1.
2) Remove the SUB TAKE-UP BRAKE as instructed in 2-7-1.
3) Remove the special washer ①, then remove the CONTROL PLATE LEVER ②.
4) Remove the two special washers ③, then remove the M PLATE SLIDE ASS'Y ④.
5) Remove the SPRING COIL ⑤.
6) Remove the SUPPLY BRAKE ASS'Y ⑥ and the TAKE-UP BRAKE ASS'Y ⑦.

Note: Take care not to soil the brake shoes.

2. Remounting

1) Apply a thin layer of grease to axles ⑧ and ⑨.
2) Mount the TAKE-UP BRAKE ASS'Y ⑦ onto the axle ⑧.
3) Mount the SUPPLY BRAKE ASS'Y ⑥ onto the axle ⑨.
4) After applying a thin layer of grease to the M PLATE SLIDE ASS'Y ④ as shown in Fig. A, mount it onto the two pins ⑩.
5) Mount the two special washers ③ onto the two pins ⑩.
6) After applying grease to the CONTROL PLATE LEVER ② as shown in Fig. B, mount it onto the axle ⑪. Insert the pin ⑫ of the ACT PLATE SLIDE ASS'Y into the hole ⑭, and the pin ⑬ of M PLATE SLIDE ASS'Y into the hole ⑮.
7) Mount the special washer ① onto the pin ⑫.
8) Mount the SUB TAKE-UP BRAKE as instructed in 2-7-1.
9) Mount the COMPL CASSETTE MECHANISM as instructed in 2-2-1.


③Special Washer
⑤Spring Coil
②Control Plate Lever
③Special Washer
①Special Washer
④M Plate Slide Ass'y
⑭Hole
⑥Supply Brake Ass'y
⑮Hole
⑬Pin
⑦Take-up Brake Ass'y
⑩Pin
⑨Axle
⑧Axle
⑯Act Brake Slide
⑩Pin
⑪Axle
⑫Pin
Top side view
Fig. A
④M Plate Slide Ass'y
Bottom side view
②Control Plate Lever
Fig. B

▨ : Apply grease portion

When assembling, the contact surfaces of Take-up Brake ⑦ and the Brake Slide ⑯ marked with ◌ should contact but not overlap each other.

Fig. 2-7-2. Supply Brake Ass'y & Take-up Brake Ass'y

2-7-3. TENSION LEVER ASS'Y AND BAND HOLDER ASS'Y (See Fig. 2-7-3.)

1. Removal

1) Remove the COMPL CASSETTE MECHANISM as instructed in 2-2-1.
2) Remove the SPRING COIL ①.
3) Remove the screw ③ fixing the BAND HOLDER ASS'Y ②.
4) Push the SUB SUPPLY BRAKE ④ in the direction of the arrow, setting the BAND HOLDER ASS'Y ② free.
5) Open the hook ⑤ a little and remove the TENSION LEVER ASS'Y ⑥. Take care not to open the hook ⑤ too much, otherwise it may be deformed or broken.
6) Remove the hook ⑦ of the BAND HOLDER ASS'Y.

2. Remounting

1) Mount the BAND HOLDER ASS'Y hook ⑦ into the TENSION LEVER ASS'Y hole ⑧.
2) Insert the TENSION LEVER ASS'Y axle ⑨ into the hole ⑩ and confirm that the hook ⑤ is hooked.
3) While pushing the SUB SUPPLY BRAKE ④ in the direction of arrow A, mount the BAND HOLDER ASS'Y ② with the screw ③.
4) Hook the SPRING COIL ① between the hooks ⑪ and ⑫.
5) Perform TENSION POLE position adjustment as instructed in 5-3.
6) Mount the COMPL CASSETTE MECHANISM as instructed in 2-2-1.

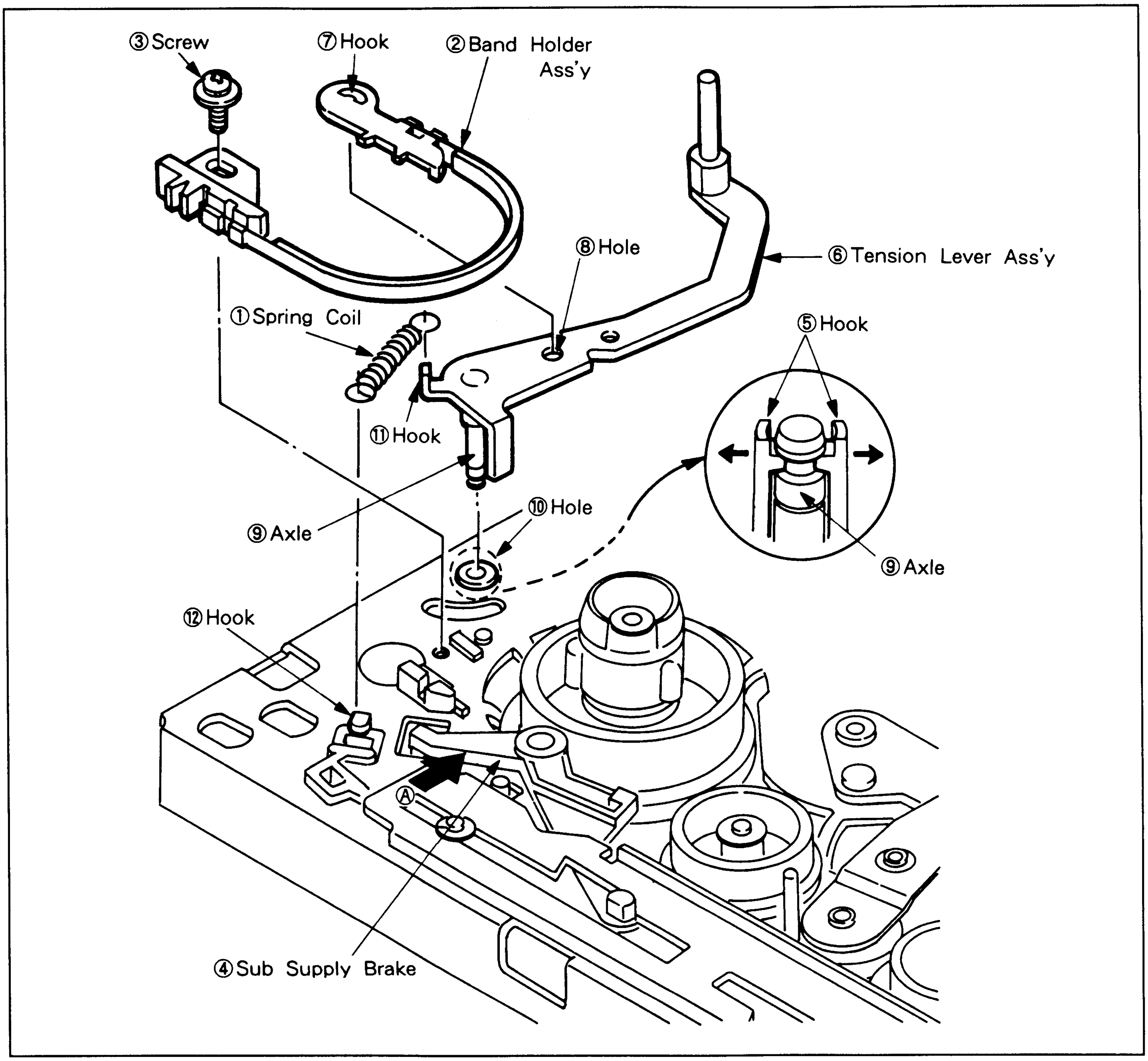

③Screw
⑦Hook
②Band Holder Ass'y
⑧Hole
⑥Tension Lever Ass'y
①Spring Coil
⑤Hook
⑪Hook
⑩Hole
⑨Axle
⑨Axle
⑫Hook
Ⓐ
④Sub Supply Brake

Fig. 2-7-3. Tension Lever Ass'y & Band Holder Ass'y

2-7-4. CAPSTAN BRAKE ASS'Y (See Fig. 2-7-4.)

1. Removal

1) Remove the SPRING COIL ①.
2) Unhook the hook ②, then remove the CAPSTAN BRAKE ASS'Y ③.

2. Remounting

1) Mount the CAPSTAN BRAKE ASS'Y ③ onto the axle ④. Confirm that the hook ② is hooked to the chassis.
2) Hook the SPRING COIL ① between hooks ⑤ and ⑥. Fix the hook ⑥ side with adhesive (use an adhesive that allows later detaching).

Note: As for the model with two video heads, there are two types : one with the spring coil ① and CAPSTAN BRAKE ASS'Y ③ mounted, and one where these parts are not mounted.

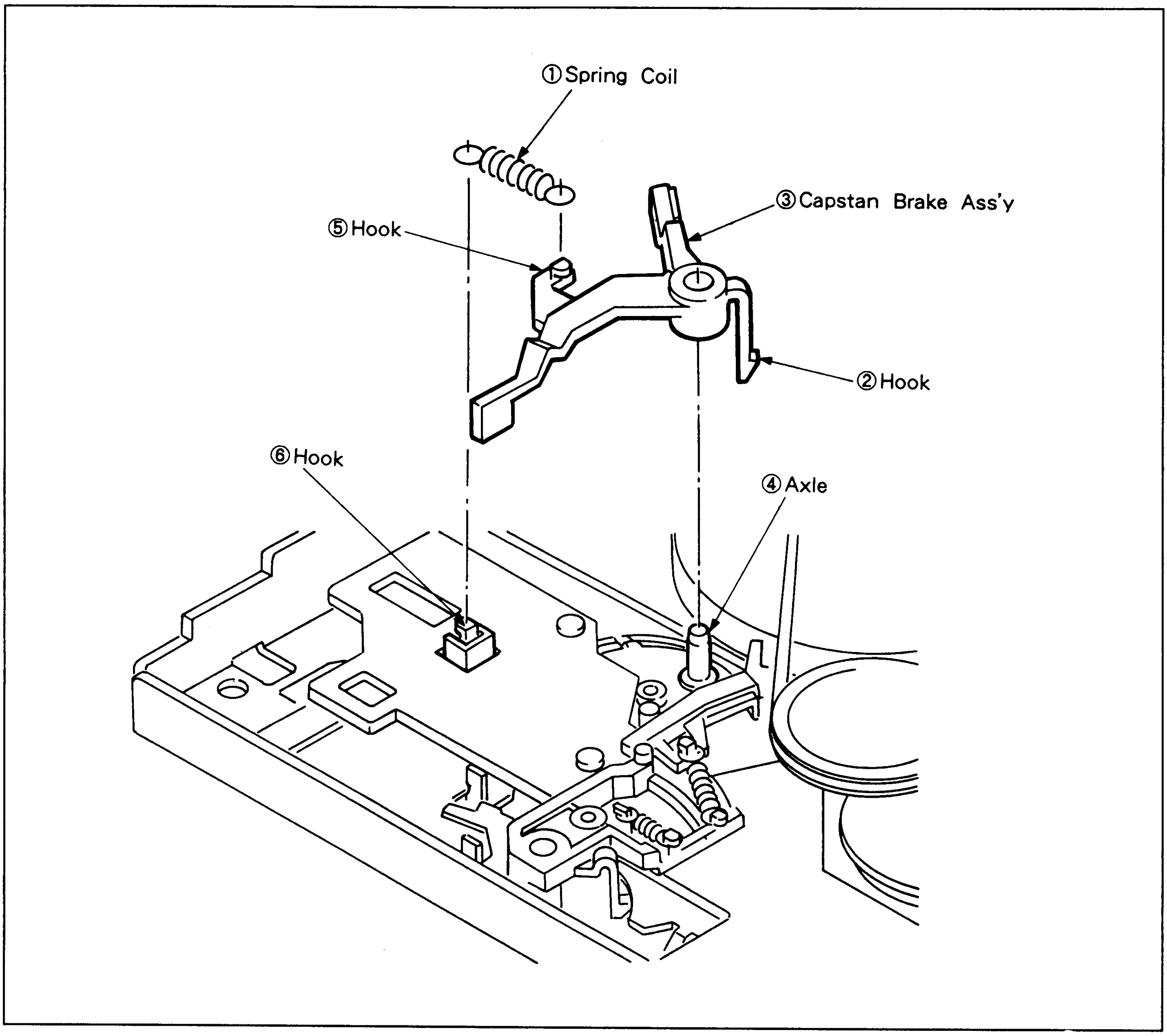


Fig. 2-7-4. Capstan Brake Ass'y

2-8. REEL TABLE DRIVE MECHANISM

2-8-1. SUPPLY REEL ASS'Y AND SUPPLY REEL GEAR (See Fig. 2-8-1.)

1. Removal

1) Remove the COMPL CASSETTE MECHANISM as instructed in 2-2-1.
2) Remove the BAND HOLDER ASS'Y as instructed in 2-7-3.
3) Set the PLAY mode with the mode selector (VHJ-0050).
4) Remove the special washer ①, then remove the SUPPLY REEL ASS'Y ② and the washer ③.
5) Remove the special washer ④.
6) While pushing the SUPPLY BRAKE ASS'Y ⑤ in the direction of arrow A, remove the SUPPLY REEL GEAR ⑥ and the washer ⑦.

Note: Be sure that no dirt gets on the section where both brake shoes make contact.

2. Remounting

1) Apply a little oil (less than one drop) to the part of the axle ⑧ indicated by the arrow B, then mount the washer ⑦.
2) While pushing the SUPPLY BRAKE ASS'Y ⑤ in the direction of arrow A, mount the SUPPLY REEL GEAR ⑥ onto the axle ⑧.
3) Mount the special washer ④ to the axle ⑧.
4) Apply 1 drop of oil to the part of the axle ⑨ indicated by the arrow C, then mount the washer ③.
5) Mount the SUPPLY REEL ASS'Y ② onto the axle ⑨.
6) Perform reel table height adjustment as instructed in 5-2-1.
7) Mount the special washer ① onto the axle ⑨.
8) Mount the BAND HOLDER ASS'Y as instructed in 2-7-3.
9) Perform tension pole position adjustment as instructed in 5-3.
10) Mount the COMPL CASSETTE MECHANISM as instructed in 2-2-1.

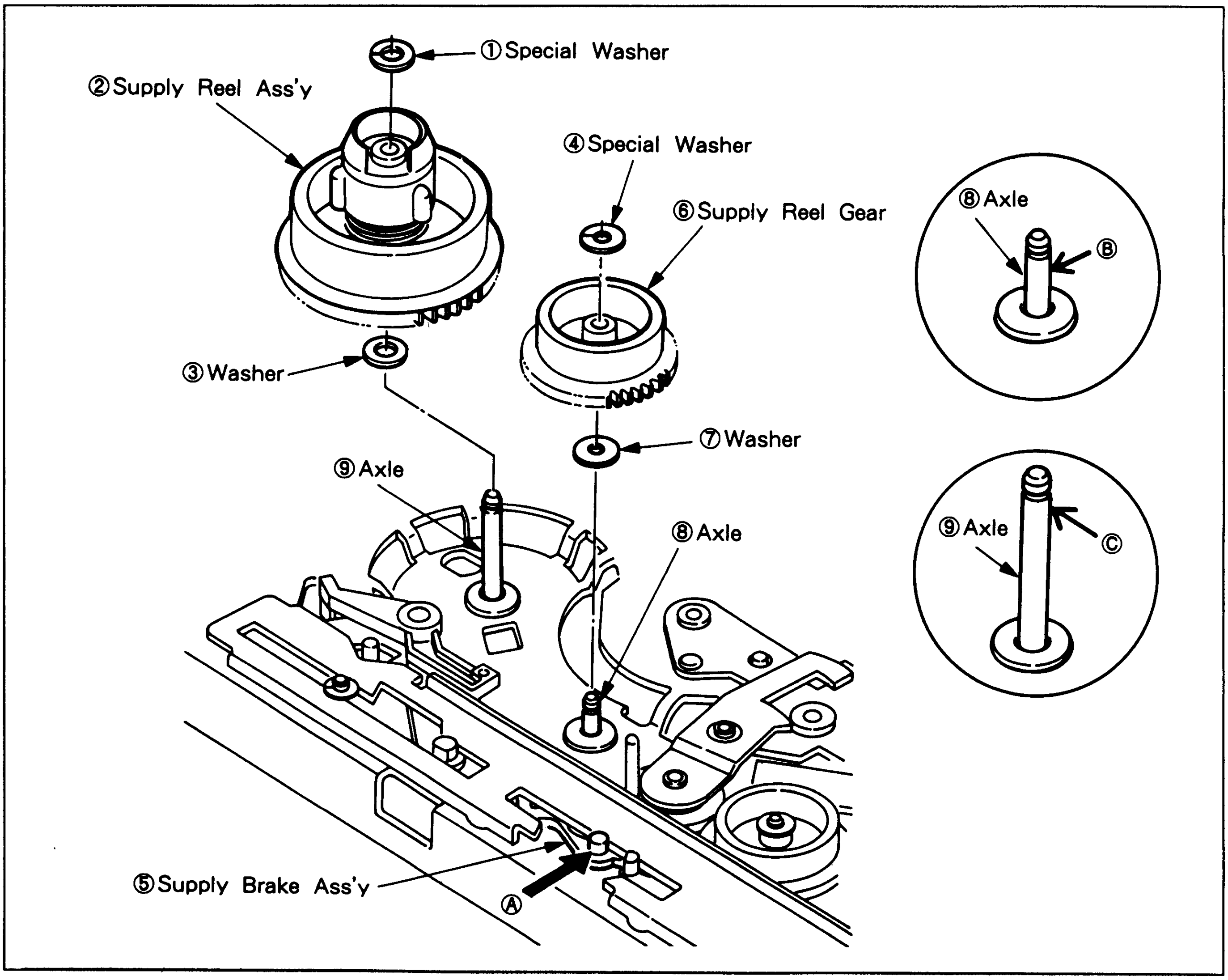


Fig. 2-8-1. Supply Reel Ass'y & Supply Reel Gear

2-8-2. TAKE-UP REEL ASS'Y (See Fig. 2-8-2.)

1. Removal

1) Remove the COMPL CASSETTE MECHANISM as instructed in 2-2-1.
2) Remove the special washer ①.
3) Push the SUB TAKE-UP BRAKE ASS'Y ② in the direction of arrow A to release the brake, then remove the TAKE-UP REEL ASS'Y ③ and the washer ④.

Note: Be sure that no dirt gets on the section where both brake shoes make contact.

2. Remounting

1) Apply 1 drop of oil to the part of the axle ⑤ indicated by the arrow B, then mount the washer ④.
2) While pushing the SUB TAKE-UP BRAKE ASS'Y ② in the direction of arrow A, mount the TAKE-UP REEL ASS'Y ③ onto the axle ⑤.
3) Perform reel table height adjustment as instructed in 5-2.
4) Mount the special washer ① onto the axle ⑤.
5) Mount the COMPL CASSETTE MECHANISM as instructed in 2-2-1.

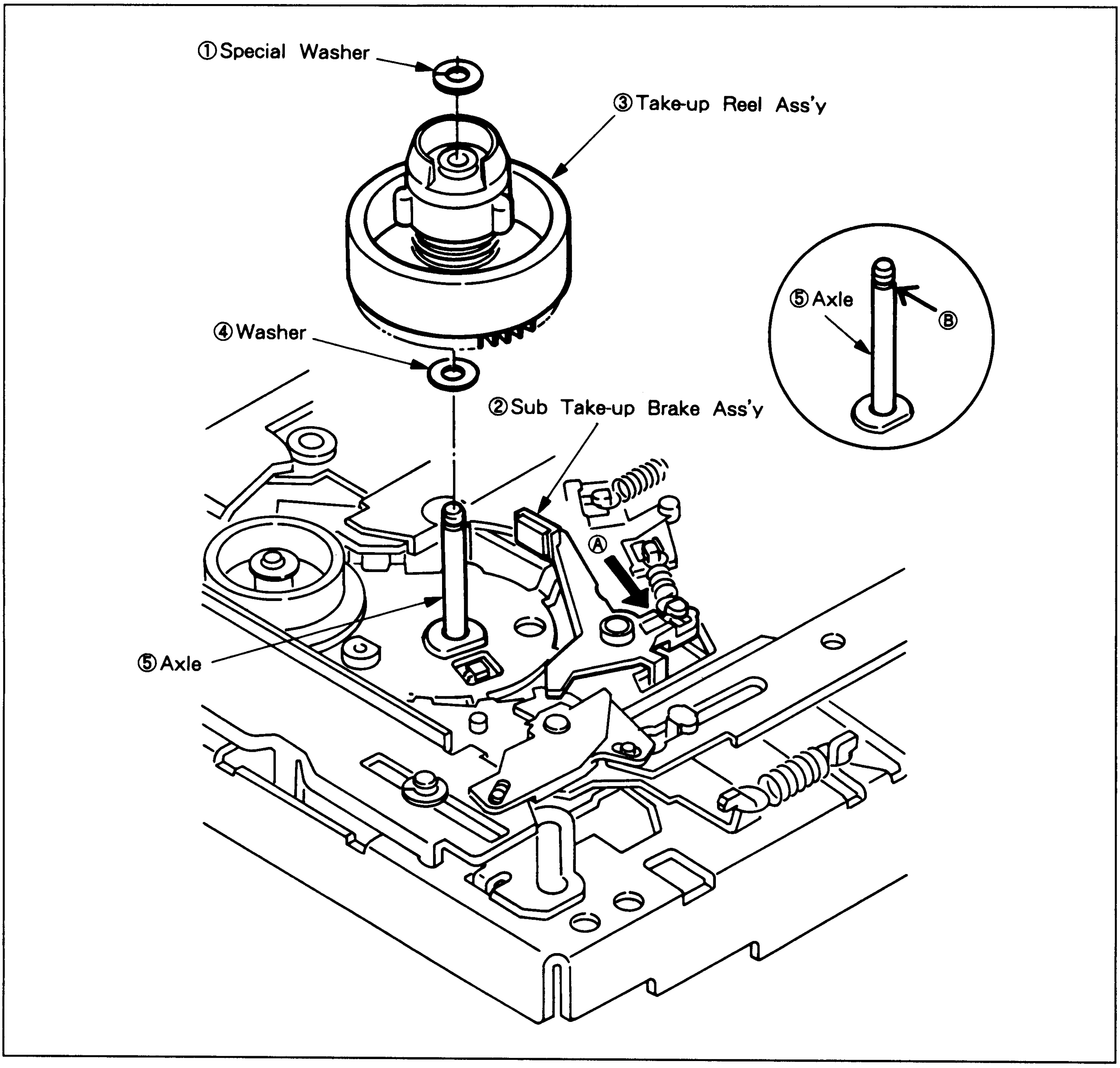


Fig. 2-8-2. Take-up Reel Ass'y

2-8-3. TAKE-UP REEL GEAR (See Fig. 2-8-3.)

1. Removal

1) Remove the COMPL CASSETTE MECHANISM as instructed in 2-2-1.
2) Remove the TAKE-UP REEL ASS'Y as instructed in 2-8-2.
3) Remove the SUB TAKE-UP BRAKE ASS'Y as instructed in 2-7-1.
4) Remove the TAKE-UP BRAKE ASS'Y as instructed in 2-7-2.
5) Remove the special washer ①, then remove the TAKE-UP REEL GEAR ③ and the washer ④.

2. Remounting

1) Apply a little oil (less than one drop) to the part of the axle ⑤ indicated with an arrow.
2) Mount the washer ④ and the TAKE-UP REEL GEAR ③ onto the axle ⑤.
3) Mount the special washer ① onto the axle ⑤.
4) Mount the TAKE-UP BRAKE ASS'Y as instructed in 2-7-2.
5) Mount the SUB TAKE-UP BRAKE ASS'Y as instructed in 2-7-1.
6) Mount the TAKE-UP REEL ASS'Y as instructed in 2-8-2.
7) Mount the COMPL CASSETTE MECHANISM as instructed in 2-2-1.

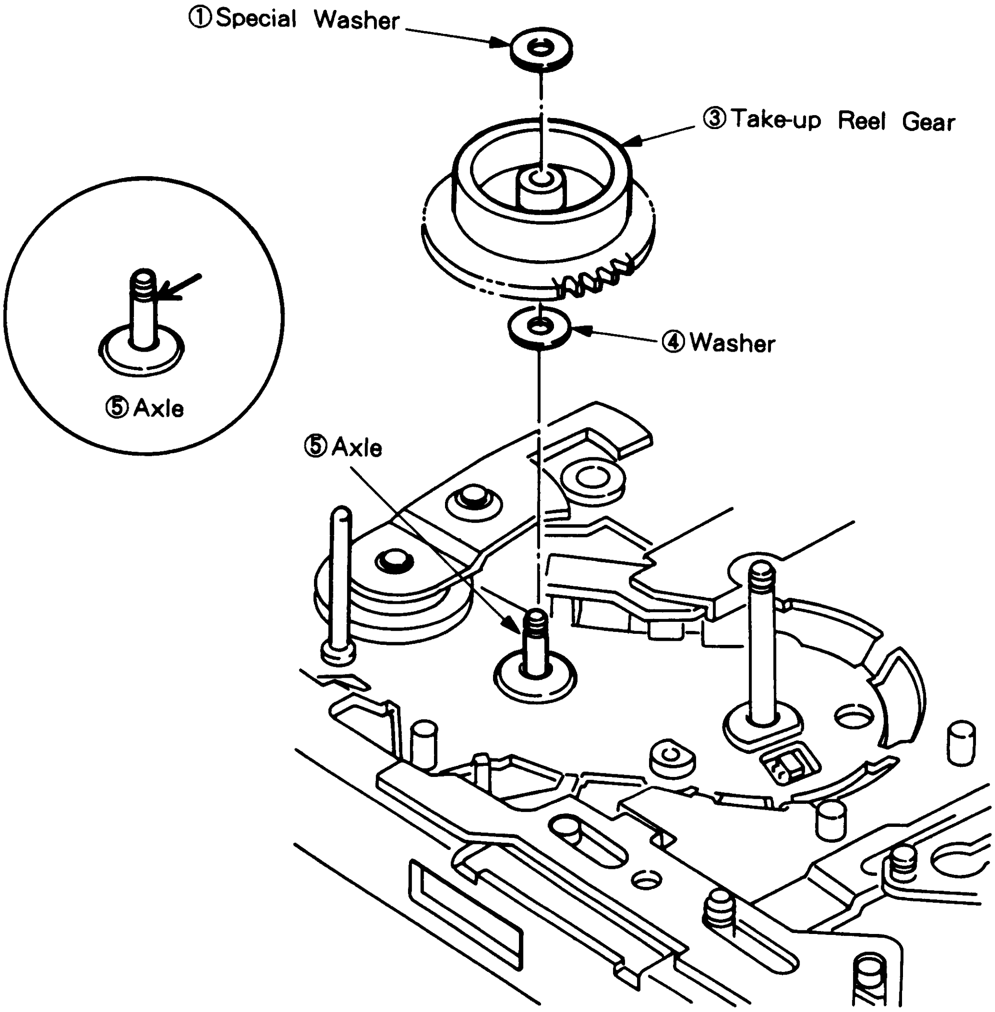


Fig. 2-8-3. Take-up Reel Gear

2-8-4. REEL PULLEY AND FRICTION GEAR ASS'Y (See Fig. 2-8-4.)

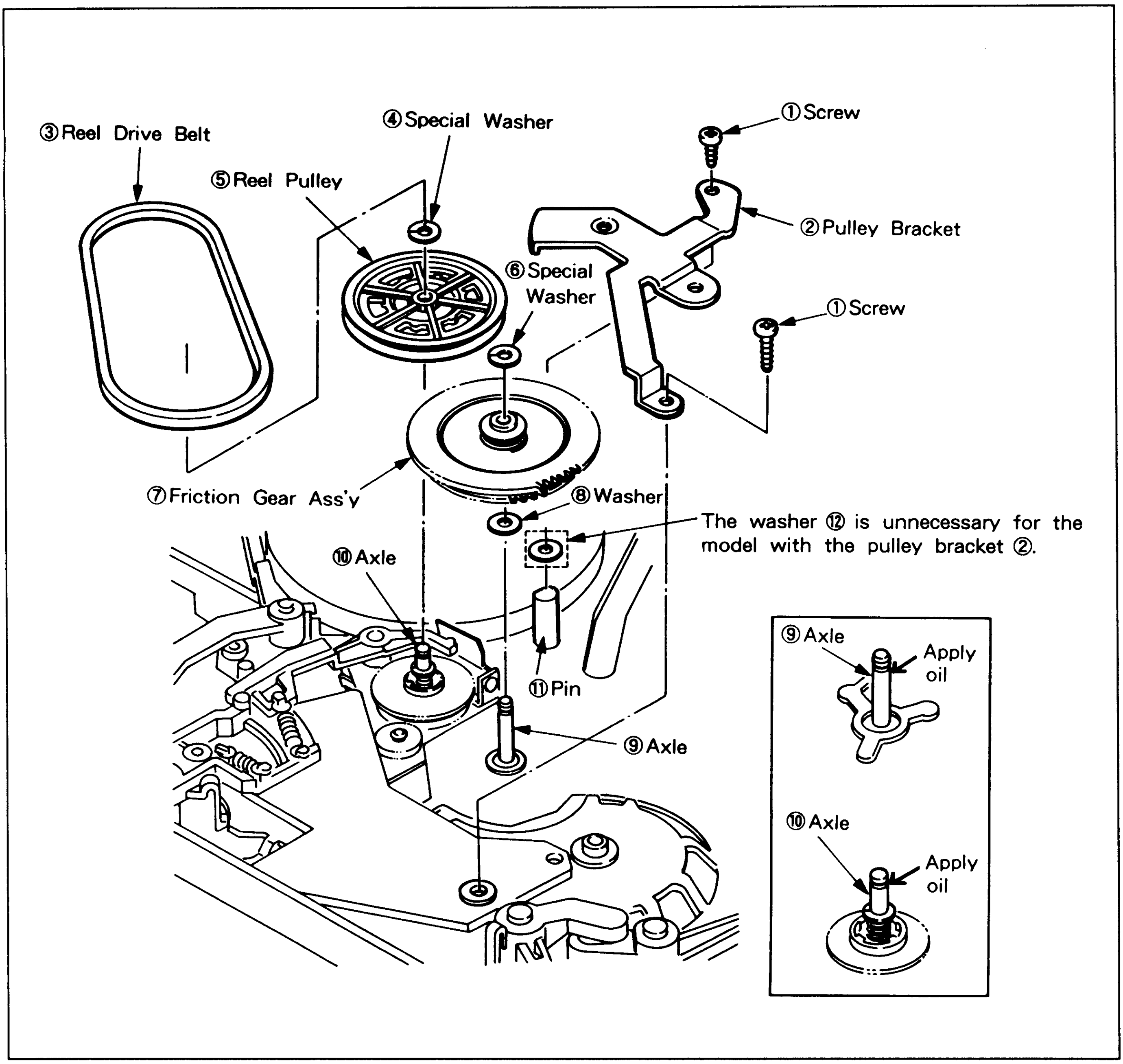
1. Removal

1) Remove the two screws ①, then remove the PULLEY BRACKET ②.
2) Remove the REEL DRIVE BELT ③.
3) Remove the special washer ④, then remove the REEL PULLEY ⑤.
4) Remove the special washer ⑥, then remove the FRICTION GEAR ASS'Y ⑦ and the washer ⑧.

Note: Some model may not incorporate the pulley bracket ②. Washer ⑫ is mounted on the pin ⑪ with a screw ①, and servesas the PULLEY BRACKET ②.

2. Remounting

1) Apply one drop of oil to the parts of axles ⑨ and ⑩ indicated with arrows.
2) Mount the washer ⑧ and the FRICTION GEAR ASS'Y ⑦ onto the axle ⑨.
3) Mount the special washer ⑥ onto the axle ⑨.
4) Mount the REEL PULLEY ⑤ onto the axle ⑩.
5) Mount the special washer ④ onto the axle ⑩.
6) Set the REEL DRIVE BELT ③.
7) Mount the PULLEY BRACKET ② with the two screws ①.


③Reel Drive Belt
④Special Washer
①Screw
⑤Reel Pulley
②Pulley Bracket
⑥Special Washer
①Screw
⑦Friction Gear Ass'y
⑧Washer
⑩Axle
⑪Pin
⑨Axle
⑨Axle
Apply oil
⑩Axle
Apply oil

The washer ⑫ is unnecessary for the model with the pulley bracket ②.

Fig. 2-8-4. Reel Pulley & Friction Gear

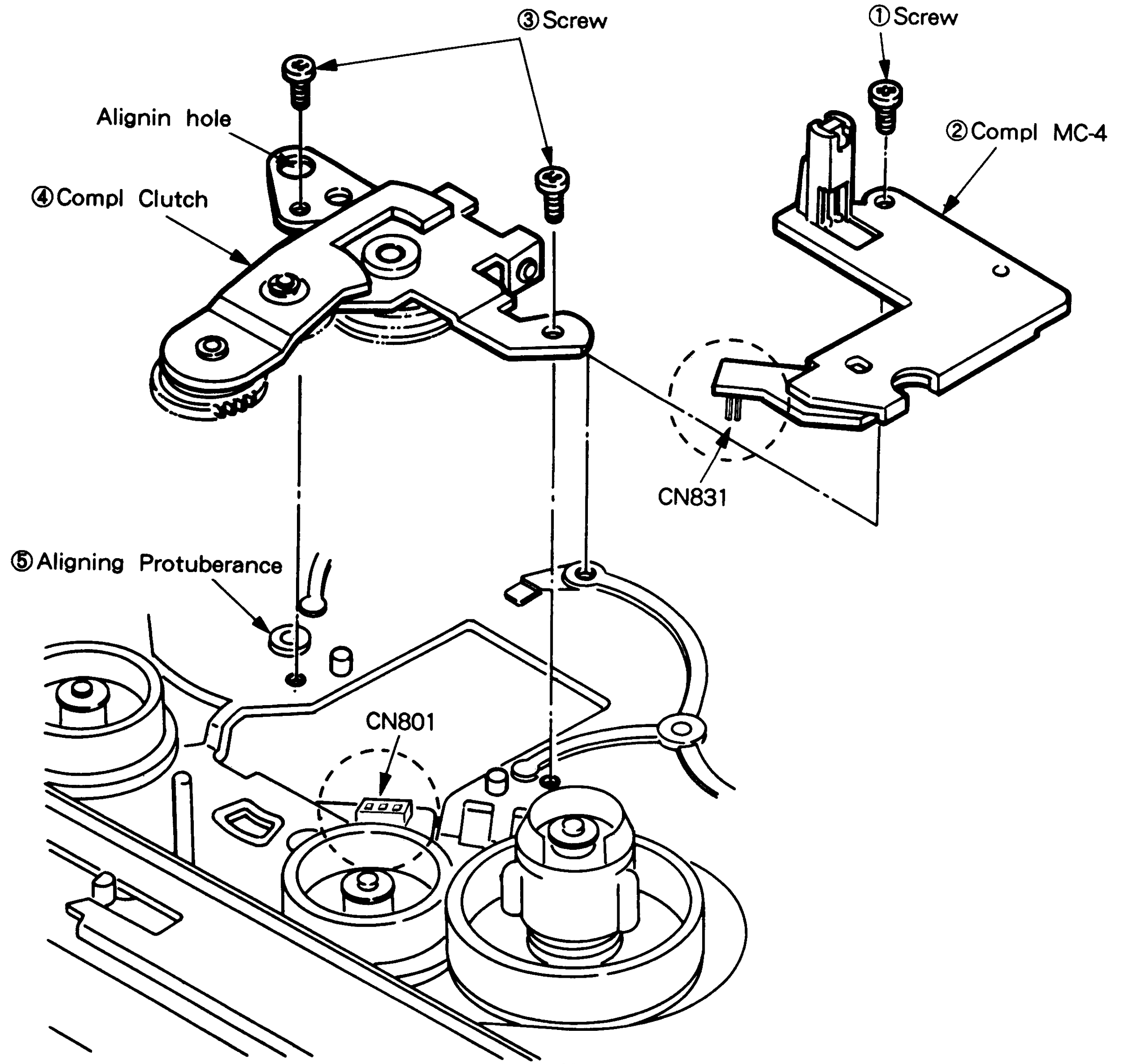
2-8-5. COMPL CLUTCH (See Fig. 2-8-5.)

1. Removal

1) Remove the COMPL CASSETTE MECHANISM as instructed in 2-2-1.
2) Remove the PULLEY BRACKET, the REEL DRIVE BELT and the REEL PULLEY as instructed in 2-8-4.
3) Remove the screw ①, then remove the COMPL MC-4 ②.
4) Remove the two screws ③, then remove the COMPL CLUTCH ④.

2. Remounting

1) Mount the COMPL CLUTCH ④ with the two screws ③, aligning it with the protuberance ⑤.
2) After inserting the CN831 (COMPL MC-4) into the CN801 (COMPL MC-1), mount the COMPL MC-4 with the screw ①.
3) Mount the REEL PULLEY, the REEL DRIVE BELT and the PULLEY BRACKET as instructed in 2-8-4.
4) Mount the COMPL CASSETTE MECHANISM as instructed in 2-2-1.


③Screw
①Screw
Alignin hole
②Compl MC-4
④Compl Clutch
CN831
⑤Aligning Protuberance
CN801

Note: The form of CN801 and CN 831 differ from the former that.

Fig. 2-8-5. Compl Clutch

2-8-6. CLUTCH CHANGE LEVER AND CLUTCH LEVER ASS'Y (See Fig. 2-8-6.)

1. Removal

1) Remove the CAPSTAN BRAKE ASS'Y as instructed in 2-7-4.
2) Remove the PULLEY BRACKET, the REEL DRIVE BELT and the REEL PULLEY as instructed in 2-8-4.
3) Remove the SPRING COIL ①.
4) Unhook the hook ②, then remove the CLUTCH CHANGE LEVER ③.
5) Unhook the hook ⑤, then remove the CLUTCH LEVER ASS'Y ⑥.

2. Remounting

1) Mount the CLUTCH LEVER ASS'Y ⑥ onto the axle ⑦. Confirm that the hook ⑤ is hooked to the chassis.
2) Mount the CLUTCH CHANGE LEVER ③ onto the axle ⑧. Confirm that the hook ② is hooked to the chassis.
3) Hook the SPRING COIL ① between the hooks ⑨ and ⑩.
4) Mount the PULLEY BRACKET, the REEL DRIVE BELT and the REEL PULLEY as instructed in 2-8-4.
5) Mount the CAPSTAN BRAKE ASS'Y as instructed in 2-7-4.

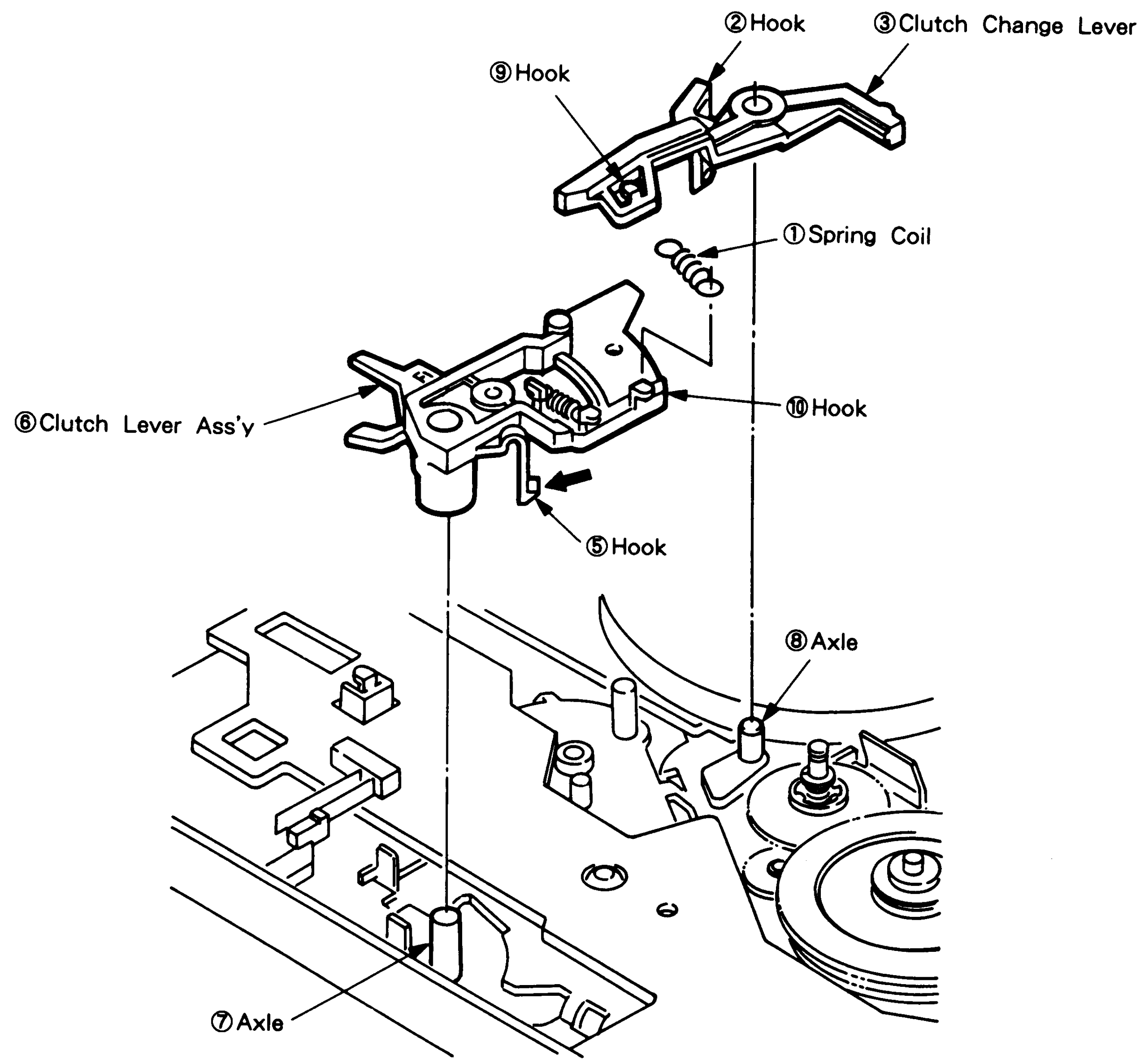

②Hook
③Clutch Change Lever
⑨Hook
①Spring Coil
⑥Clutch Lever Ass'y
⑩Hook
⑤Hook
⑧Axle
⑦Axle

Fig. 2-8-6. Clutch Change Lever & Clutch Lever Ass'y

2-9. CAPSTAN MOTOR (See Fig. 2-9-1.)

1. Removal

1) Remove the CAPSTAN BRAKE ASS'Y as instructed in 2-7-4.
2) Remove the CAPSTAN MOTOR ⑥ connector.
3) Remove the REEL DRIVE BELT ② from the CAPSTAN MOTOR PULLEY ①.
4) Remove the two screws ④ fixing the COMPL CASSETTE MECHANISM TOP BOARD ③, then slide the TOP BOARD ③ backward.
5) Remove the three screws ⑤, then remove the CAPSTAN MOTOR ⑥.

Note: Take care not to scratch or soil the capstan axle.

2. Remounting

1) Mount the CAPSTAN MOTOR ⑥ with the three screws ⑤.
2) Connect the CAPSTAN MOTOR ⑥ connector.
3) Mount the TOP BOARD ③ with the two screws ④.
4) Fit the REEL DRIVE BELT ② around the CAPSTAN MOTOR PULLEY ① and the REEL PULLEY ⑦.
5) Mount the CAPSTAN BRAKE ASS'Y as instructed in 2-7-4.

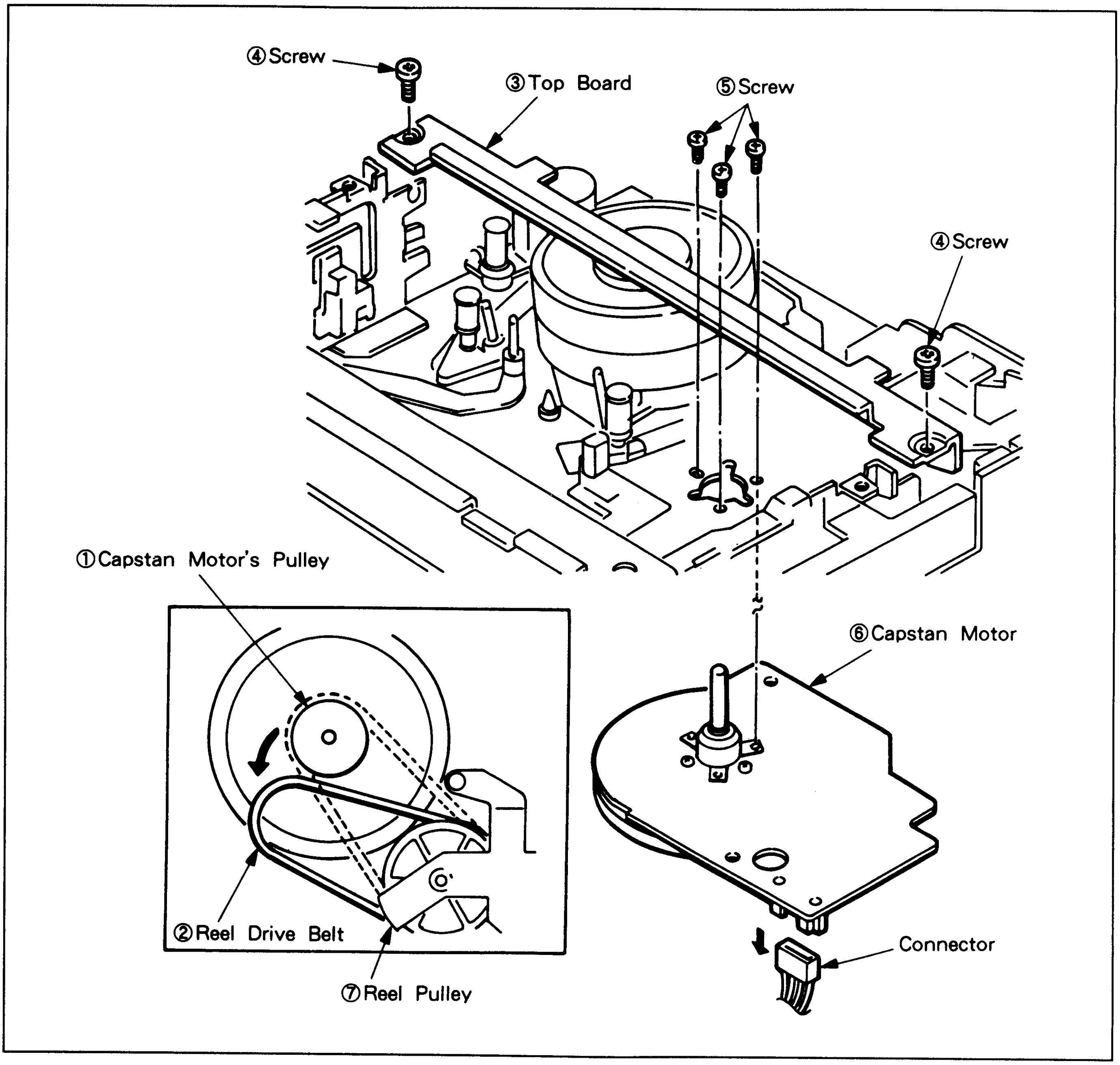

④Screw
③Top Board
⑤Screw
④Screw
①Capstan Motor's Pulley
⑥Capstan Motor
②Reel Drive Belt
⑦Reel Pulley
Connector

Fig. 2-9-1. Capstan Motor

2-10. FIXED GUIDE, FE HEAD LEVER ASS'Y

2-10-1. S-SIDE FIXED GUIDE AND FE LEVER ASS'Y (See Fig. 2-10-1.)

1. Removal

1) Remove the special nut ①, then remove the GUIDE PIPE ③ and the special washer ② (lower), in that order.
2) Remove the SPRING COIL ⑤.
3) Remove the FTE HEAD connector.
4) Remove the special washer ⑥, then remove the FE HEAD LEVER ASS'Y ⑦.

2. Remounting

1) After mounting the FE LEVER ASS'Y ⑦ onto the axle ⑧, mount the special washer ⑥.
2) Hook the SPRING COIL ⑤ between the chassis notch ⑨ and the FE LEVER ASS'Y hook ⑩.
3) Mount the special washer ② (lower), the GUIDE pipe ③ and the special nut ① to the axle ⑧, in that order. At that time, do not excessively tighten the special nut ① to avoid idle rotation of the axle rivet. The height of fixing guide on the inlet side is not required.
4) Connect the connector to the FTE HEAD.

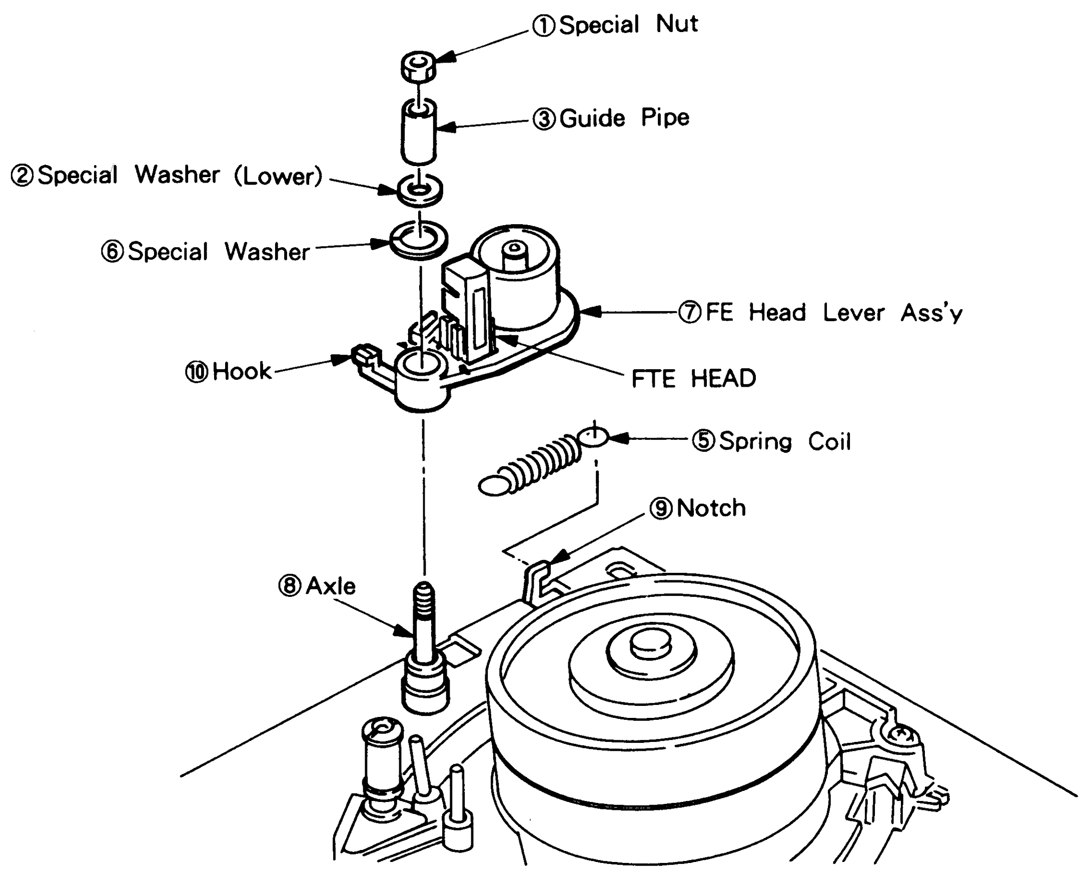

①Special Nut
③Guide Pipe
②Special Washer (Lower)
⑥Special Washer
⑦FE Head Lever Ass'y
⑩Hook
FTE HEAD
⑤Spring Coil
⑨Notch
⑧Axle

Fig. 2-10-1. Fixed Guide (S) & FE Lever Ass'y

2-10-2. IMPEDANCE ROLLER, FTE HEAD (See Fig. 2-10-2.)

1. Removal

1) Remove the FTE HEAD (full track erase head) ① connector.
2) Remove the special washer ②, then remove the IMPEDANCE ROLLER ③ and the washer ④.
3) Open the hook ⑤ a little and remove the FTE HEAD ①.

Note: Take care not to open the hook too much, otherwise it may be deformed or broken.

2. Remounting

1) Mount the FTE HEAD ① onto the FE HEAD LEVER ASS'Y ⑥. Confirm that the hook ⑤ is hooked to the FTE HEAD ①.
2) Mount the washer ④ and the IMPEDANCE ROLLER ③, in that order, onto the axle ⑦, then mount the special washer ②.
3) Connect the connector to the terminal of the FTE HEAD ①.

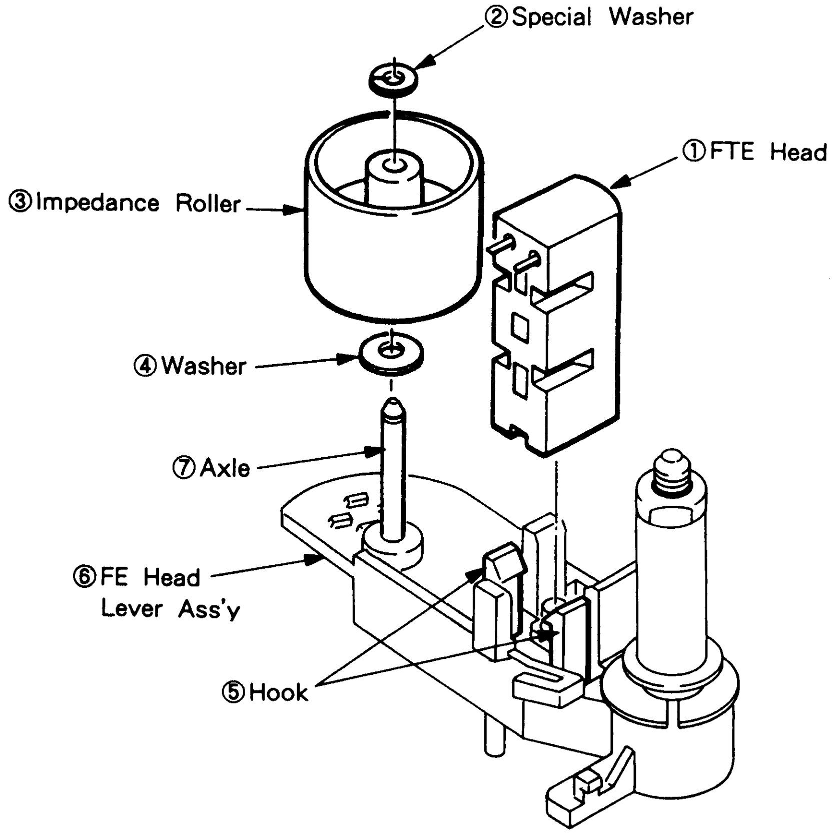

②Special Washer
①FTE Head
③Impedance Roller
④Washer
⑦Axle
⑥FE Head Lever Ass'y
⑤Hook

Fig. 2-10-2. Impedance Roller & FTE Head

2-10-3. FIXED GUIDE (T) (See Fig. 2-10-3.)

1. Removal

1) Remove the CAP ①.
2) Remove the special nut ②, then remove the special washer ③ (upper), the GUIDE PIPE ④, the special washer ③ (lower) and the SLEEVE ⑤, in that order.

2. Remounting

1) Mount the SLEEVE ⑤, the special washer ③ (lower), the GUIDE PIPE ④, the special washer ③ (upper) and the special nut ②, in that order, to the axle ⑥.
2) Mount the CAP ① onto the axle ⑥.

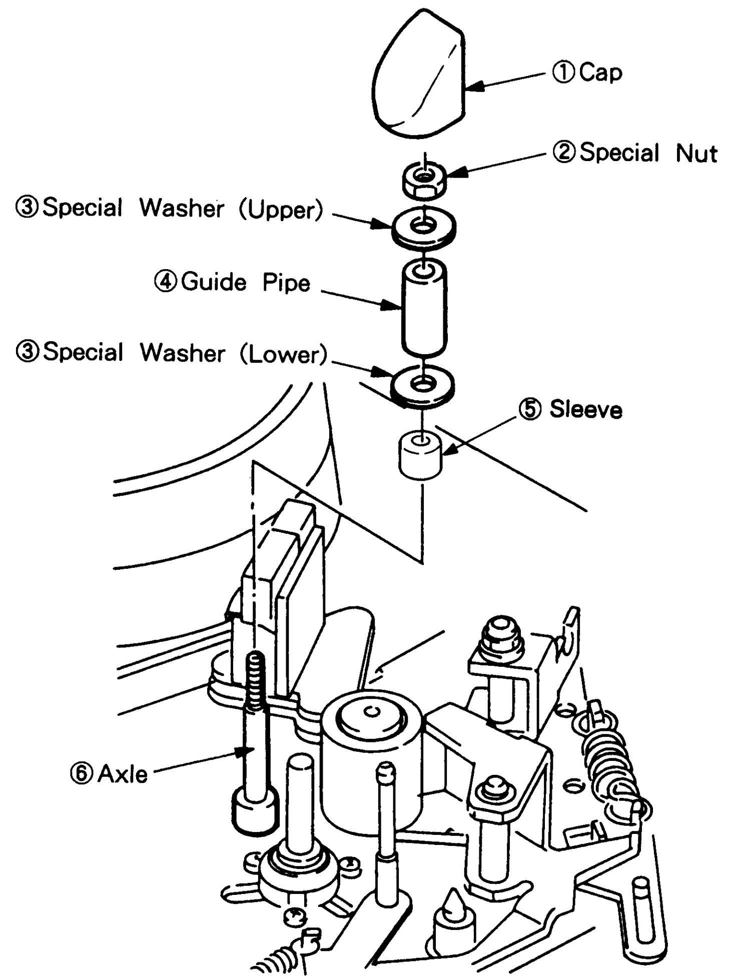

①Cap
②Special Nut
③Special Washer (Upper)
④Guide Pipe
③Special Washer (Lower)
⑤ Sleeve
⑥Axle

Fig. 2-10-3. Fixed Guide (T)

2-11. DRUM SECTION

2-11-1. DRUM MOTOR (ROTOR, STATOR) (See Fig. 2-11-1.)

1. Removal

1) Remove the screw ①, then remove the CYLINDER EARTH ASS'Y ②.
2) Remove the two screws ③, then remove the ROTOR ④ and the SPACER.
3) Remove the STATOR board connector.
4) Remove the three screws ⑤, then remove the STATOR ⑥.

2. Remounting

1) Mount the STATOR ⑥ with the three screws ⑤.
2) Mount the SPACER ⑪ onto the AXLE ⑫.
3) While aligning the ROTOR oval hole ⑦ with the ROTOR DISK hole ⑧, mount the ROTOR with the two screws ③.
4) Insert the connector ⑩.
5) While aligning the CYLINDER EARTH ASS'Y ② protuberance with the chassis hole ⑨, mount it with the screw ①.

Note 1: Use a torque driver (VHJ-0014) for mounting the STATOR ⑥ and the ROTOR ④. Set fastening torque to 3 kg-cm.

Note 2: When the drum unit has been replaced, perform a tape path adjustment as instructed in 5-4. and perform a PB PHASE adjustment of the servo circuit.

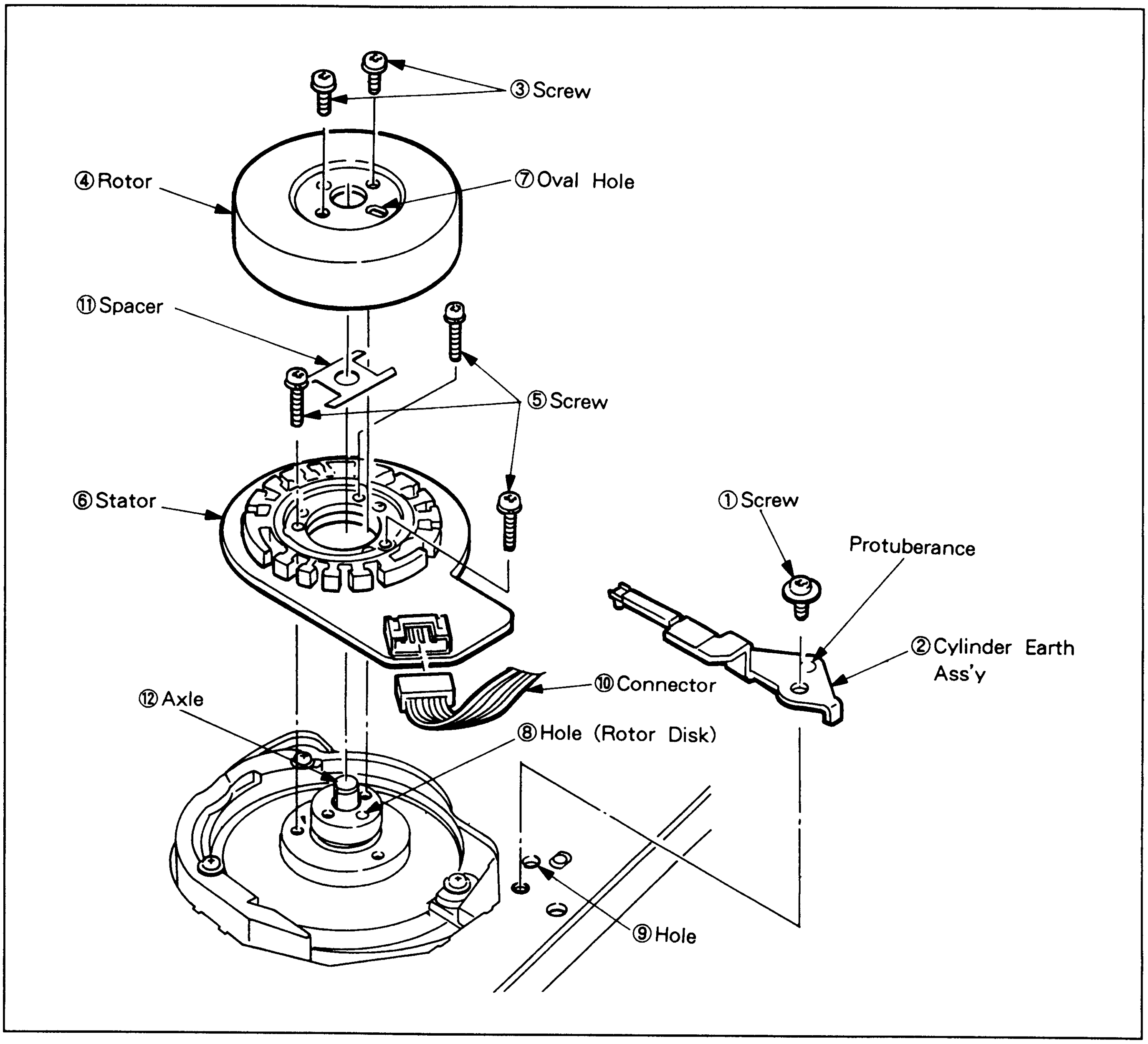

③ Screw
④ Rotor
⑦ Oval Hole
⑪ Spacer
⑤ Screw
⑥ Stator
① Screw
Protuberance
② Cylinder Earth Ass'y
⑩ Connector
⑫ Axle
⑧ Hole (Rotor Disk)
⑨ Hole

Fig. 2-11-1. Drum Motor

2-11-2. DRUM UNIT (See Fig. 2-11-2.)

1. Removal

1) For some models with the board located above the upper drum, remove the board.
2) Remove the flexible cable ① from the PRE-AMP UNIT (take care not to pull the flexible cable in the upward direction).
3) Remove the LOAD RACK only, as instructed in 2-4-1.
4) Remove the three screws ②, then remove the drum unit ③.

Note: When removing and remounting the drum unit, handle it carefully to protect it from scratches and dirt.

2. Remounting

1) While aligning the drum unit ③ to the protuberance, mount it to the drum base (CYLINDER BASE) ⑤ with the three screws ②.
2) Mount the ROAD RACK as instructed in 2-4-1.
3) Insert the flexible cable into the PRE-AMP UNIT.
4) Clean the drum unit.
5) Perform the tape path adjustment as instructed in 5-4. and perform the PB PHASE adjustment of the servo circuit.

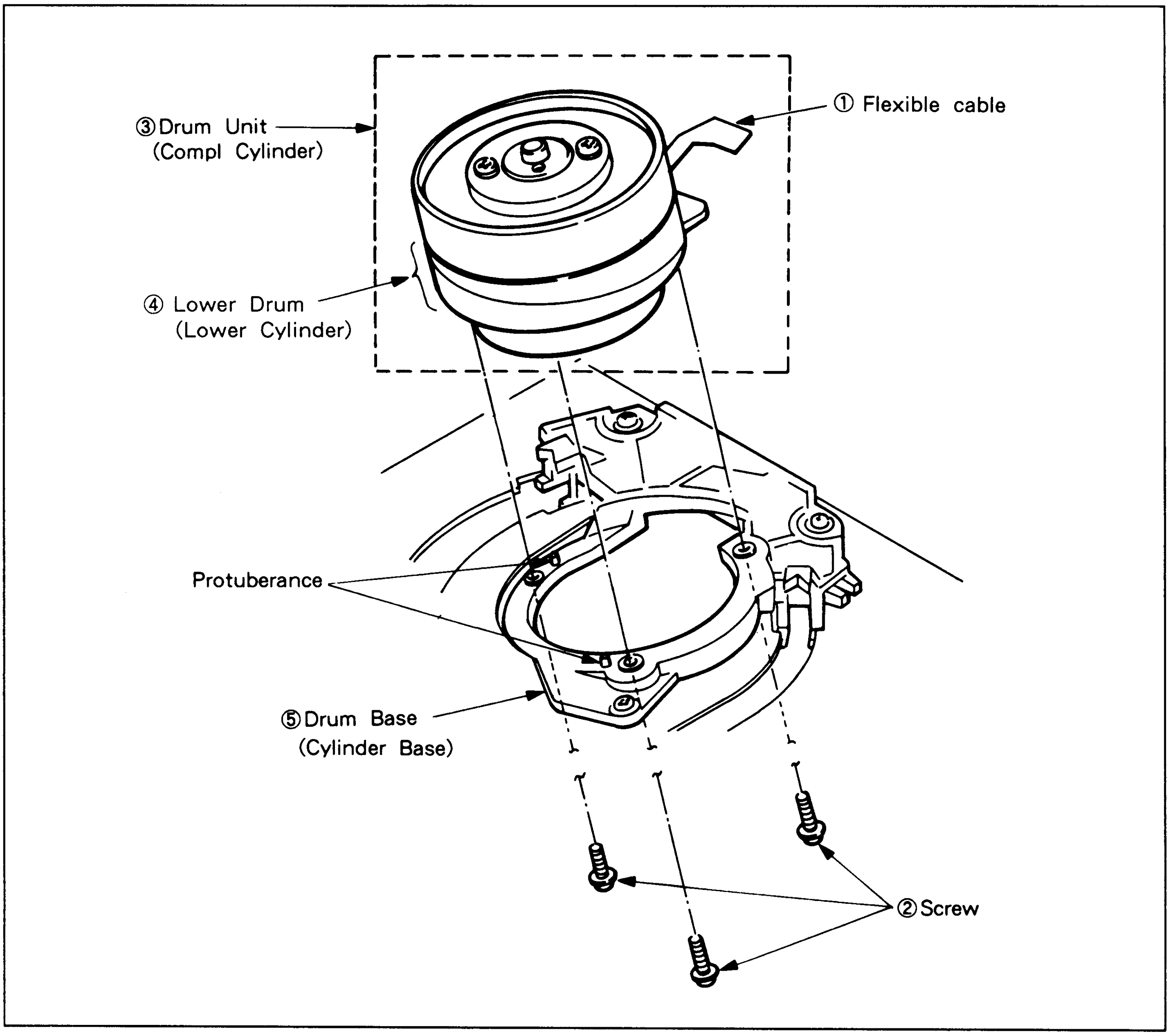

③Drum Unit
(Compl Cylinder)
① Flexible cable
④ Lower Drum
(Lower Cylinder)
Protuberance
⑤Drum Base
(Cylinder Base)
②Screw

Fig. 2-11-2. Drum Unit (Compl Cylinder)

2-11-3. UPPER DRUM (Upper Cylinder)

1. Removal

1) Remove the two screws ①. (See Fig. 2-11-3.)
2) In case the RE (ROTARY ERASE) HEAD is attached to the upper drum (UPPER CYLINDER), remove the lead wires soldered from the P.C. board. (See Fig. 2-11-4.)
3) Turn the head removing jig (VHJ-0041) handle ② counterclockwise to lift up the stopper ③. (See Fig. 2-11-5.)
4) Insert the two long screws ④ of the jig into the screw holes ⑥ located on the head chip side of the upper drum (UPPER CYLINDER) ⑤, then mount by turning the handle clockwise.
5) While holding the jig so that the upper drum ⑤ does not rotate, turn the handle ② clockwise to remove the upper drum.
6) Remove the jig from the upper drum.

Note: Handle parts carefully to protect the drum from scratches and dirt, and the video head from damage.

"Disassemble"

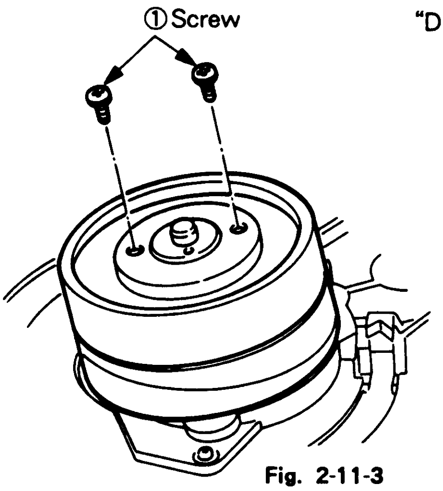


Fig. 2-11-3

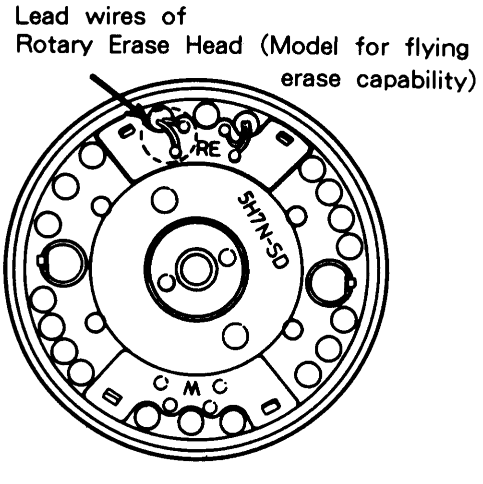

Lead wires of
Rotary Erase Head (Model for flying erase capability)
RE
SH7N-SD
C M C

Fig. 2-11-4

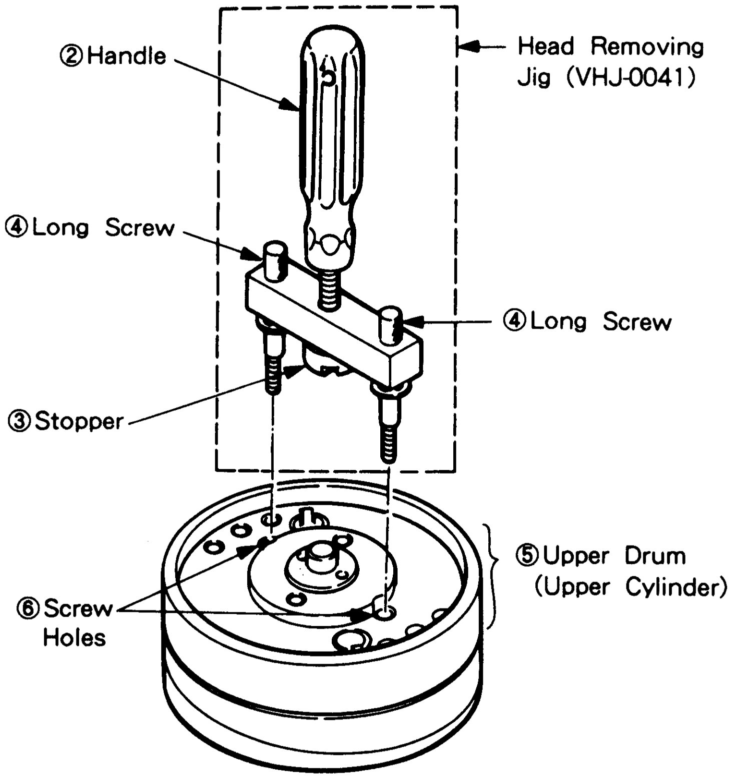

②Handle
Head Removing Jig (VHJ-0041)
④Long Screw
④Long Screw
③Stopper
⑤Upper Drum (Upper Cylinder)
⑥Screw Holes

Fig. 2-11-5

Upper Drum (Upper Cylinder)

2. Remounting (See Fig. 2-11-6.)

1) Confirm that surfaces where the flywheel and the upper drum (UPPER CYLINDER) are engaged or make contact are free from scratches and dirt.
2) The code name ① of the drum is printed on the video head side of the upper drum ⑤ SP CH-1 (channel A, plus azimuth). The code name ① is set with in the rotary transformer terminal round hole side ② position of lower drum (LOWER CYLINDER), so that the two screw holes ③ of the upper drum are aligned with the two screw holes ④ of the flywheel. (Refer to 3. Recognizing the SP CH-1 Head side.)
3) In case the RE (ROTARY ERASE) HEAD is attached to the upper drum, pass the lead wires through the lead wire hole. (See Fig. 2-11-4.)
4) While keeping the upper drum ⑤ parallel to the lower drum (LOWER CYLINDER) ⑧, insert it completely into the flywheel.
5) Temporarily tighten the two screws ⑦ alternately a little at a time, then tighten them to a torque of 6 kg-cm using a torque driver (VHJ-0014) and a 3 mm bit (VHJ-0045).
6) In case the RE head is attached to the upper drum ⑤, solder the lead wires to the P.C. board. Solder the red lead wire to the R terminal, and the yellow lead wire to the Y terminal.

Note: When the upper drum has been replaced, perform a tape path adjustment as instructed in 5-4. and the PB PHASE adjustment of the servo circuit.

"Reassemble"

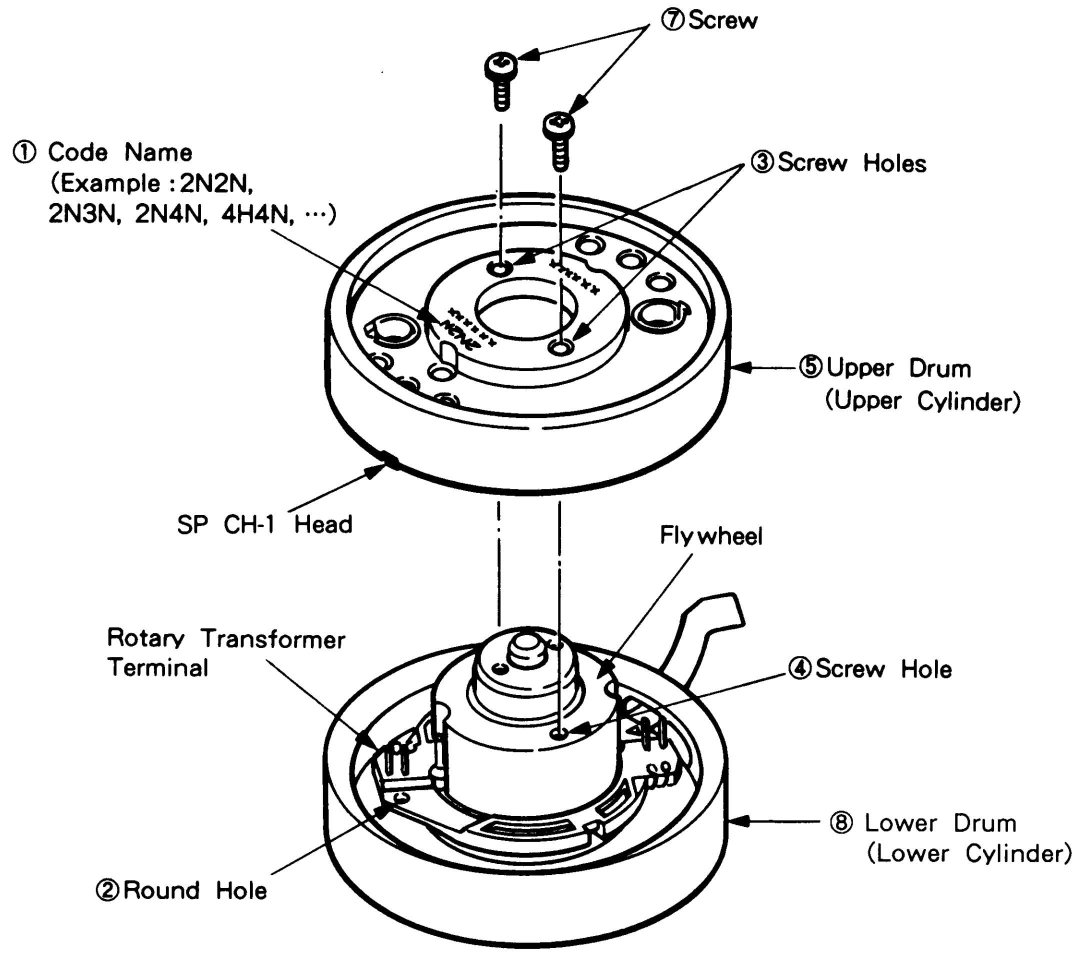

⑦Screw
① Code Name
(Example : 2N2N,
2N3N, 2N4N, 4H4N, ···)
③Screw Holes
⑤Upper Drum
(Upper Cylinder)
SP CH-1 Head
Flywheel
Rotary Transformer
Terminal
④Screw Hole
⑧ Lower Drum
(Lower Cylinder)
②Round Hole

Fig. 2-11-6.

3. Recognizing the SP CH-1 Head Side

No playback picture can be obtained if the video head is not wired as a pair with the rotary transformer located inside the lower drum rotating section. Therefore, mounting position should be matched when mounting the upper drum. In the P91 mechanism series, the code name of the drum is printed on the SP CH-1 (CH-A, plus azimuth) side as a mark for mounting the upper drum. (See Fig. 2-11-7.) This code name differs according to the drum type, but its basic form is as follows :

A = Number of head bases
B = "N" for normal audio
"H" for HI-FI audio
C = Number of heads
D = TV system ("N" or "P")
EF = Code for detailed classification. Depending on drum type, it can also be just one character, or a blank space.

Code Name Form
④Ⓗ④Ⓟ-ⒹⓈ
A B C D E F

Examples of Detailed Classification Codes
V = Head with level difference
D = Compatible with digital units
S = SVHS-compatible

Examples of Code Names
2N2P, 2N2P-L, 2N2P-V, 2N2P-D, 2N3P, 2N4P, 4H4P, 4H4P-D

Moreover, there is a round hole with marking purposes on the SP CH-1 (CH-A, plus azimuth) side of the lower drum rotary transformer terminal. As shown in Fig. 2-11-8, there are two types of rotary transformer terminals (the number of pins differs according to the number of heads).

Note: When ordering parts such as drums (CYLINDERS), do not use the code names ; always refer to the parts list and order with the specified part numbers.

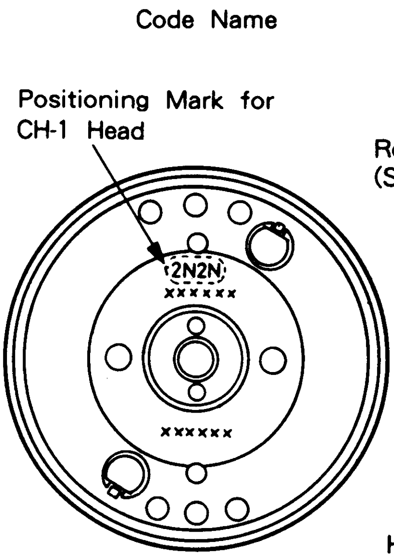

Code Name
Positioning Mark for CH-1 Head
2N2N
xxxxxx
xxxxxx

Fig. 2-11-7. Upper Drum

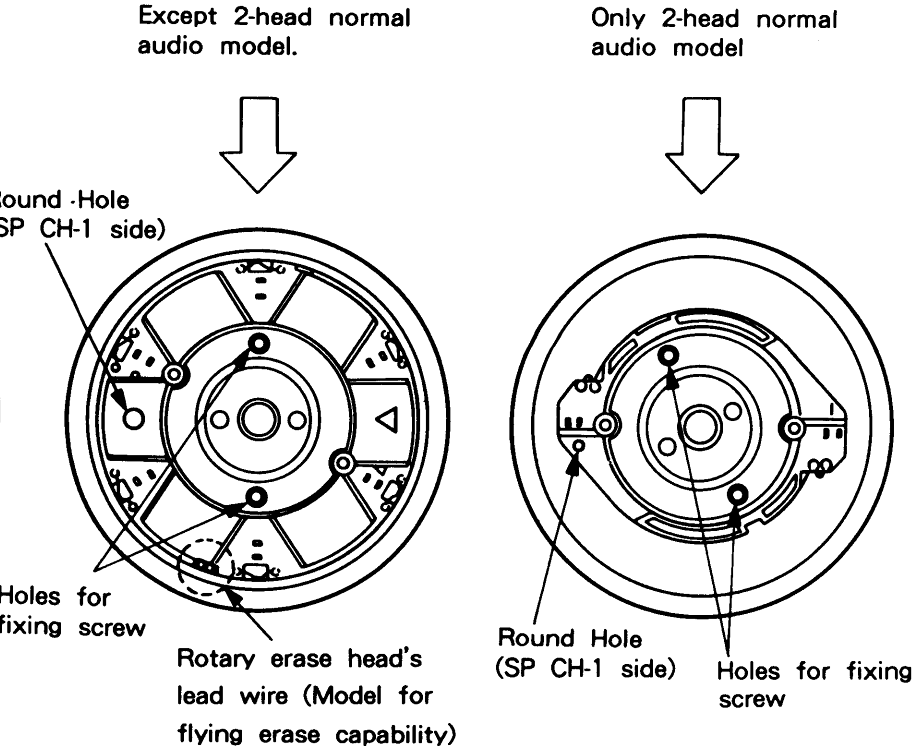

Except 2-head normal audio model.
Only 2-head normal audio model
Round Hole (SP CH-1 side)
Holes for fixing screw
Rotary erase head's lead wire (Model for flying erase capability)
Round Hole (SP CH-1 side)
Holes for fixing screw

Fig. 2-11-8. Lower Drum

2-12. AUTO HEAD CLEANING MECHANISM (See Fig. 2-12-1.)

1. Removal

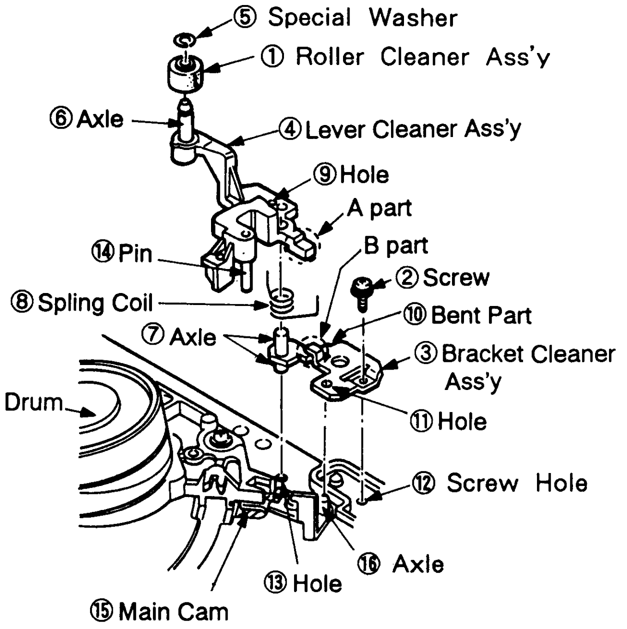
Note: • Do not hold the ROLLER CLEANER ASS'Y ① by bare hand. Use tweezers and gloves not soiled with grease or dust, etc.

• When the cleaning function deteriorates and replacing only ROLLER CLEANER ASS'Y ①, there is no need to perform item 4).

1) Make sure that the ROLLER CLEANER ASS'Y ① is not pressed against a drum (cylinder).
2) Remove the PRE-AMP UNIT and the PRE-AMP BRACKET.
3) Remove screw ②, then lift up and remove the BRACKET CLEANER ASS'Y ③.
4) With the BRACKET CLEANER ASS'Y ③ is fixed by finger, turn the LEVER CLEANER ASS'Y ④ 35 ° to 40 ° to clockwise, then lift up and remove.
5) Remove the special washer ⑤, then remove the ROLLER CLEANER ASS'Y ①.

2. Remounting

1) Mount the ROLLER CLEANER ASS'Y ① and the special washer ⑤ to the axle ⑥ of LEVER CLEANER ASS'Y.
   Mount the ROLLER CLEANER ASS'Y ① so that the mark shown in Fig. A is up side. If the mark is down side, noise may occur.
2) Mount the SPRING COIL ⑧ and the LEVER CLEANER ASS'Y ④ to the axle ⑦ of BRACKET CLEANER ASS'Y. At this time, hook the SPRING COIL ⑧ to the hole ⑨ of the LEVER CLEANER ASS'Y and the bent part ⑩ of the BRACKET CLEANER ASS'Y. "A part" of the LEVER CLEANER ASS'Y should be under "B part" of the BRACKET CLEANER ASS'Y.
3) Fix the BRACKET CLEANER ASS'Y ③ on screw hole ⑫ by screw ②. Before fasten screw ②, insert hole ⑪ of the BRACKET CLEANER ASS'Y to axle ⑯, axle ⑦ to hole ⑬ to match positions. Pin ⑭ of the LEVER CLEANER ASS'Y should be run along the circumference of the MAIN CAM ⑮ not to be came off.
4) The upper side of the lower drum should be within approx. 2mm from the lower side of the ROLLER CLEANER ASS'Y as shown in Fig. B.
5) Mount the PRE-AMP BRACKET and the PRE-AMP UNIT.


⑤ Special Washer
① Roller Cleaner Ass'y
⑥ Axle
④ Lever Cleaner Ass'y
⑨ Hole
A part
B part
⑭ Pin
② Screw
⑧ Spling Coil
⑩ Bent Part
⑦ Axle
③ Bracket Cleaner Ass'y
Drum
⑪ Hole
⑫ Screw Hole
⑯ Axle
⑬ Hole
⑮ Main Cam

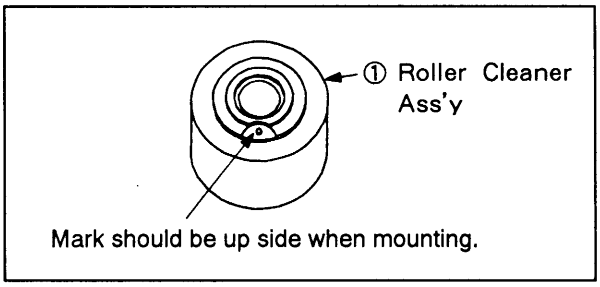

① Roller Cleaner Ass'y
Mark should be up side when mounting.

Fig. A

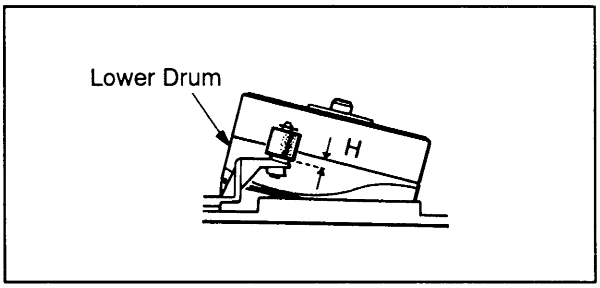
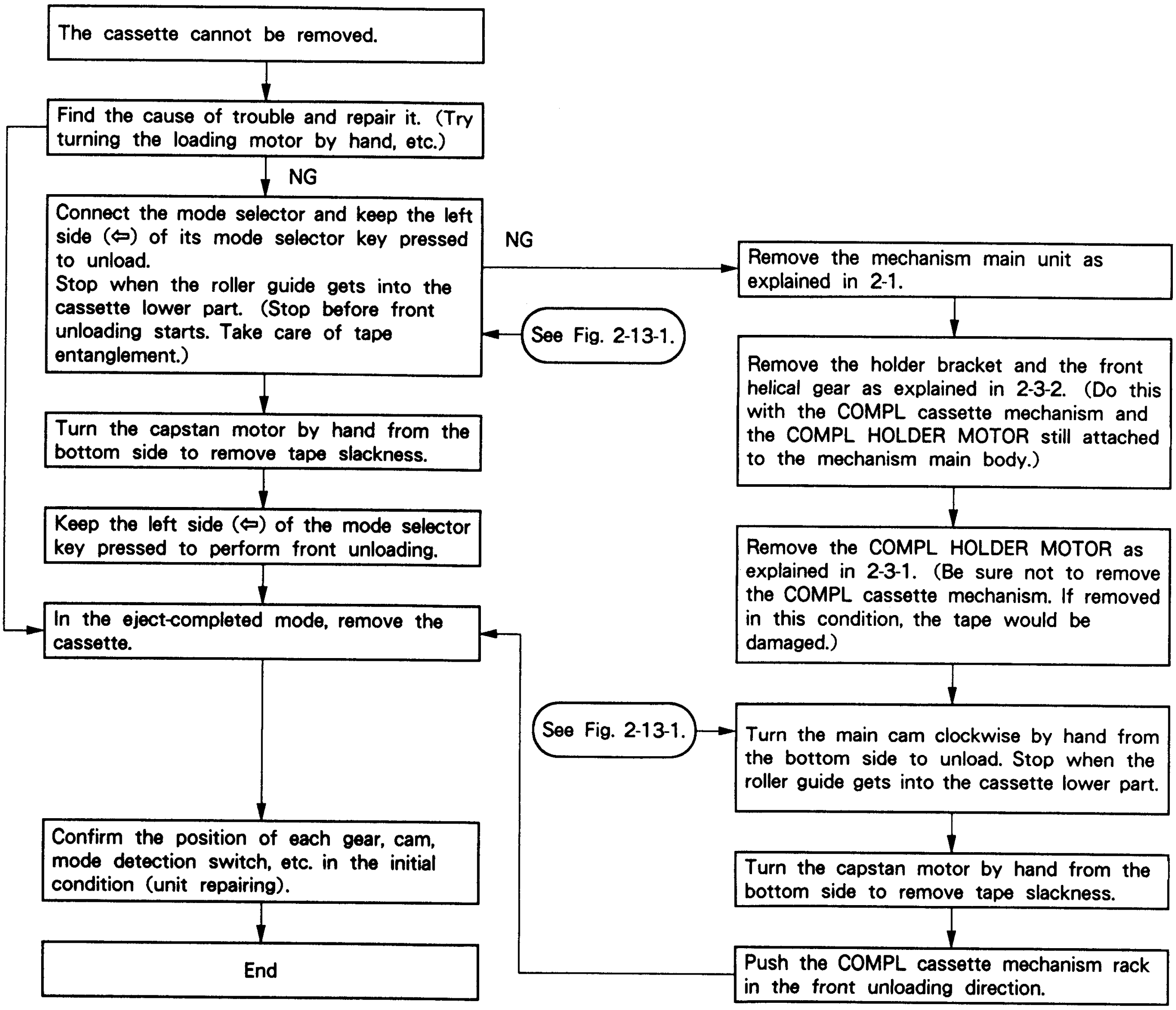

Lower Drum
H

Fig. B

Fig. 2-12. Auto Head Cleaning Mechanism

2-13. HOW TO PROCEED WHEN THE CASSETTE CANNOT BE REMOVED



The cassette cannot be removed.

Find the cause of trouble and repair it. (Try turning the loading motor by hand, etc.)

NG

Connect the mode selector and keep the left side (⇦) of its mode selector key pressed to unload.
Stop when the roller guide gets into the cassette lower part. (Stop before front unloading starts. Take care of tape entanglement.)

See Fig. 2-13-1.

Turn the capstan motor by hand from the bottom side to remove tape slackness.

Keep the left side (⇦) of the mode selector key pressed to perform front unloading.

In the eject-completed mode, remove the cassette.

Confirm the position of each gear, cam, mode detection switch, etc. in the initial condition (unit repairing).

End

NG

Remove the mechanism main unit as explained in 2-1.

Remove the holder bracket and the front helical gear as explained in 2-3-2. (Do this with the COMPL cassette mechanism and the COMPL HOLDER MOTOR still attached to the mechanism main body.)

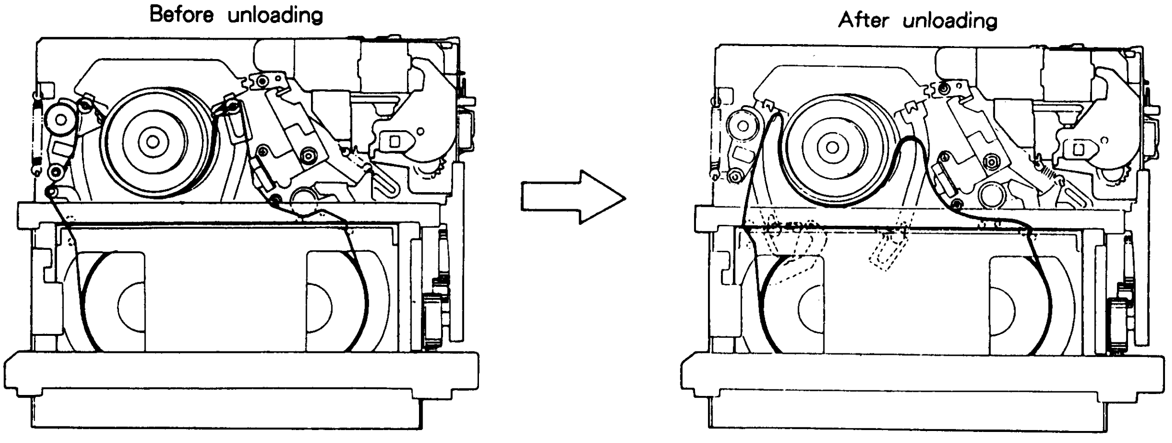
Remove the COMPL HOLDER MOTOR as explained in 2-3-1. (Be sure not to remove the COMPL cassette mechanism. If removed in this condition, the tape would be damaged.)

See Fig. 2-13-1.

Turn the main cam clockwise by hand from the bottom side to unload. Stop when the roller guide gets into the cassette lower part.

Turn the capstan motor by hand from the bottom side to remove tape slackness.

Push the COMPL cassette mechanism rack in the front unloading direction.



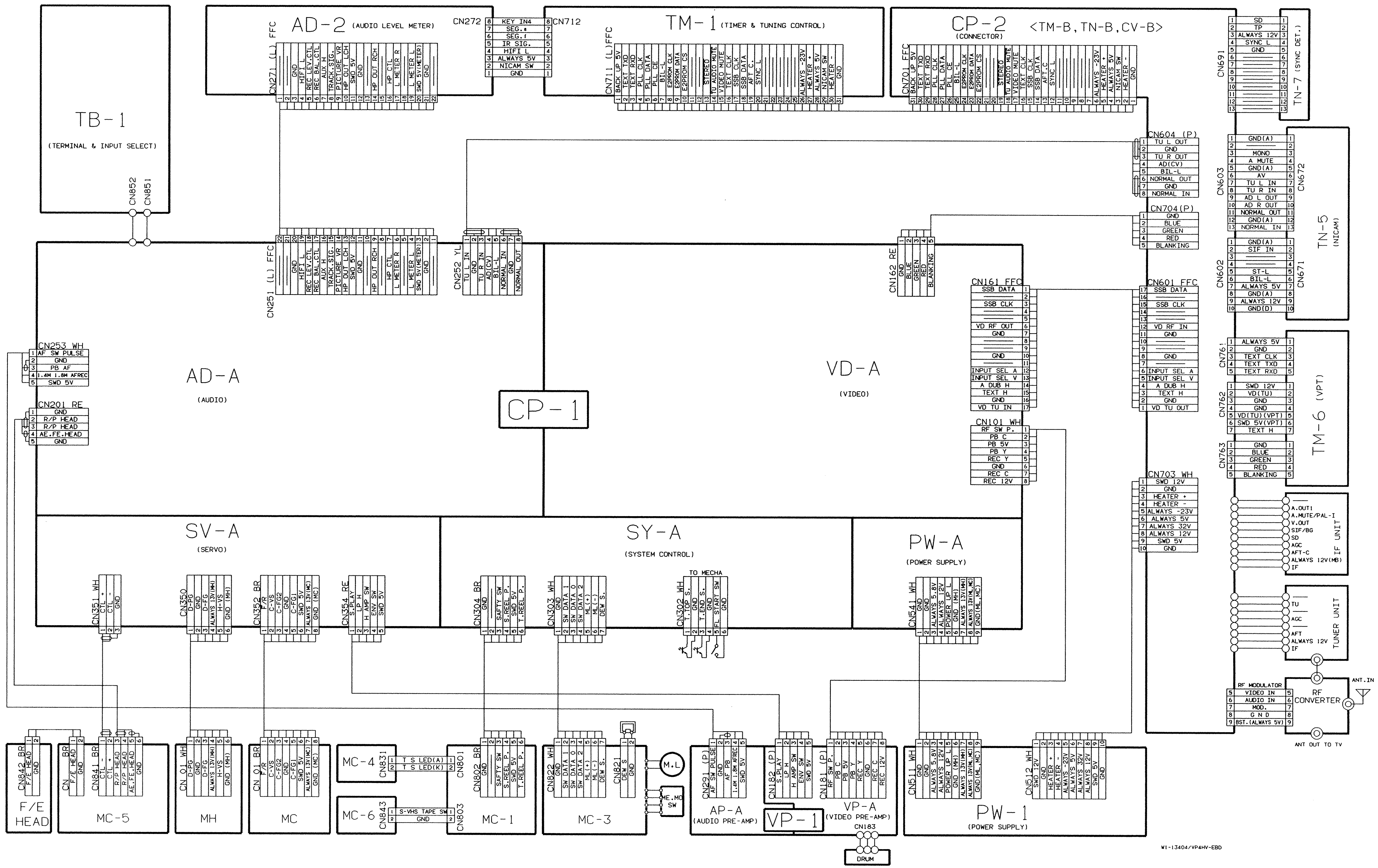
Perform unloading using the mode selector.

First rotate the capstan motor by hand from the bottom to take-up the tape slack, and perform front-unloading using the mode selector.

Fig. 2-13-1.

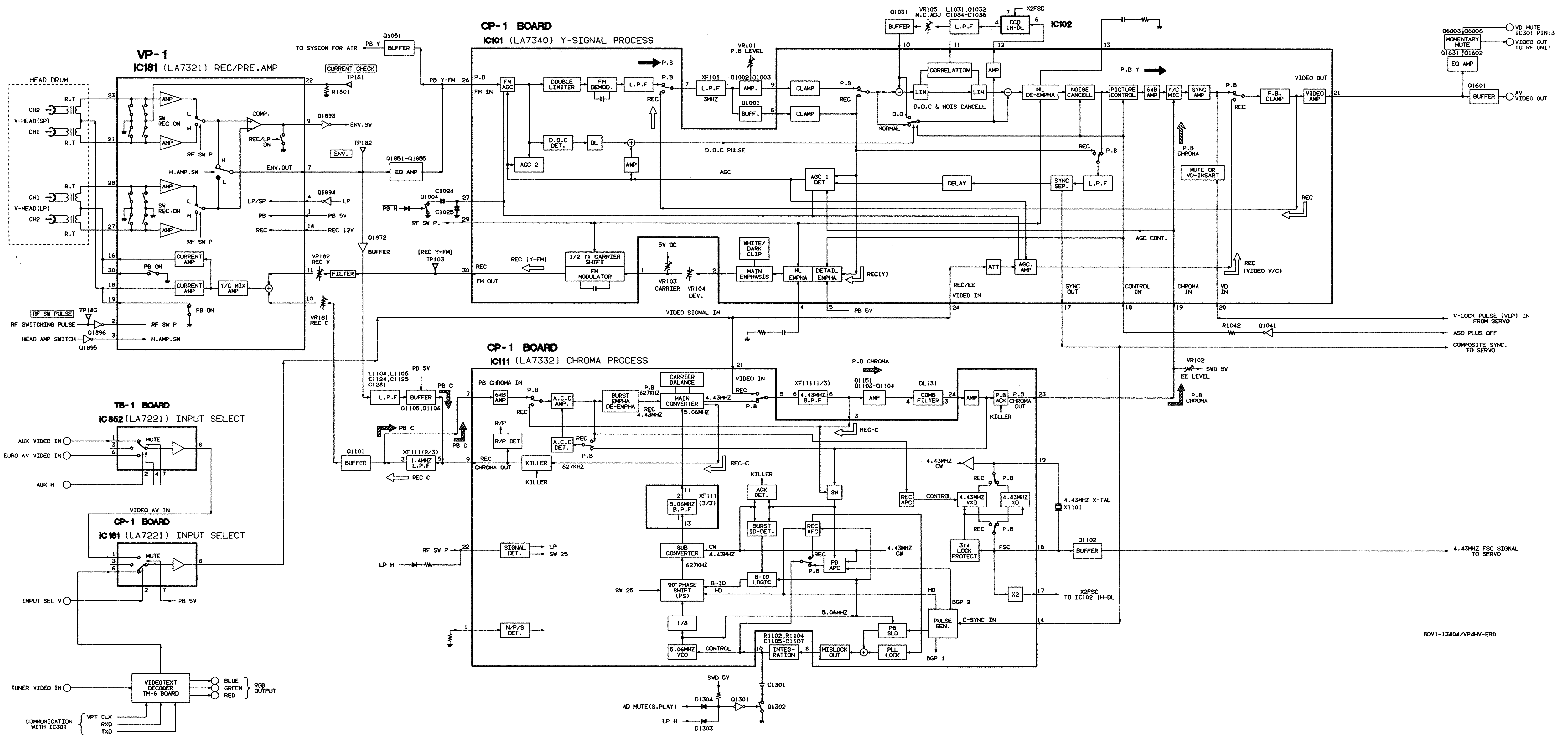
3. Block Diagrams

3-1. OVERALL WIRING DIAGRAM



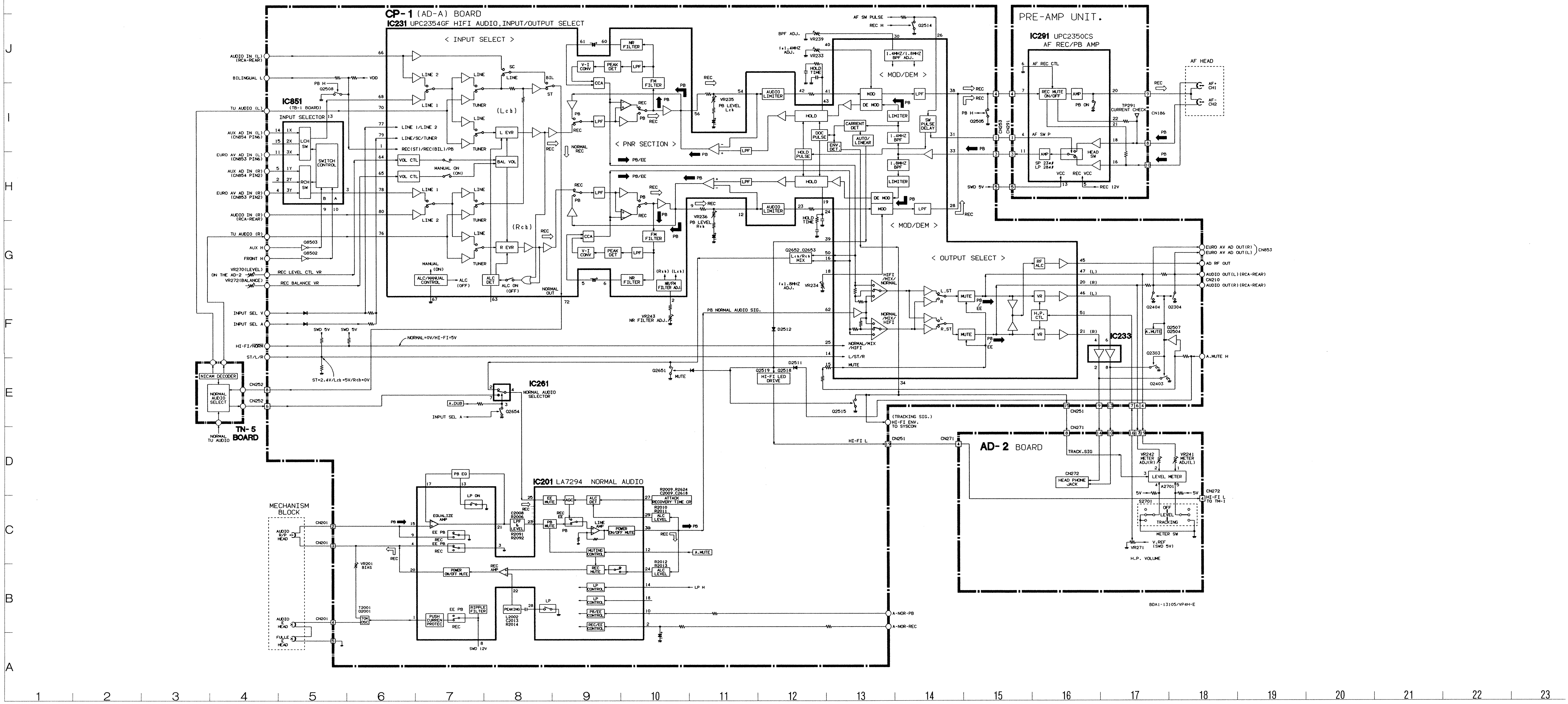
TB-1
(TERMINAL & INPUT SELECT)
CN852
CN851
AD-2 (AUDIO LEVEL METER)
CN271 (L) FFC
CN272
KEY IN4
SEG.*
SEG.!
IR SIG.
HIFI L
ALWAYS 5V
NICAM SW
GND
CN712
TM-1 (TIMER & TUNING CONTROL)
CN711 (L) FFC
CP-2 (CONNECTOR) <TM-B, TN-B, CV-B>
CN701 FFC
CN691
TN-7 (SYNC DET.)
SD
TP
ALWAYS 12V
SYNC L
GND
CN604 (P)
TU L OUT
GND
TU R OUT
AD(CV)
BIL-L
NORMAL OUT
GND
NORMAL IN
CN704 (P)
GND
BLUE
GREEN
RED
BLANKING
CN603
CN672
TN-5 (NICAM)
GND(A)
MONO
A MUTE
GND(A)
AV
TU L IN
TU R IN
AD L OUT
AD R OUT
NORMAL OUT
GND(A)
NORMAL IN
CN602
CN671
GND(A)
SIF IN
ST-L
BIL-L
ALWAYS 5V
GND(A)
ALWAYS 12V
GND(D)
CN761
ALWAYS 5V
GND
TEXT CLK
TEXT TXD
TEXT RXD
CN762
SWD 12V
VD(TU)
GND
GND
VD(TU)(VPT)
SWD 5V(VPT)
TEXT H
CN763
GND
BLUE
GREEN
RED
BLANKING
TM-6 (VPT)
CN601 FFC
SSB DATA
SSB CLK
VD RF IN
GND
INPUT SEL A
INPUT SEL V
A DUB H
TEXT H
VD TU OUT
CN703 WH
SWD 12V
GND
HEATER +
HEATER -
ALWAYS -23V
ALWAYS 5V
ALWAYS 32V
ALWAYS 12V
SWD 5V
GND
A.OUT1
A.MUTE/PAL-I
V.OUT
SIF/BG
SD
AGC
AFT-C
ALWAYS 12V(MB)
IF
IF UNIT
TU
AGC
AFT
ALWAYS 12V
IF
TUNER UNIT
RF MODULATOR
VIDEO IN
AUDIO IN
MOD.
GND
BST.(ALWAYS 5V)
RF CONVERTER
ANT.IN
ANT OUT TO TV
CN251 (L) FFC
CN252 YL
CN162 RE
CN161 FFC
SSB DATA
SSB CLK
VD RF OUT
GND
INPUT SEL A
INPUT SEL V
A DUB H
TEXT H
GND
VD TU IN
CN101 WH
RF SW P.
PB C
PB 5V
PB Y
REC Y
GND
REC C
REC 12V
CN253 WH
AF SW PULSE
GND
PB AF
1.4M 1.8M AFREC
SWD 5V
CN201 RE
GND
R/P HEAD
R/P HEAD
AE.FE.HEAD
GND
AD-A (AUDIO)
CP-1
VD-A (VIDEO)
SV-A (SERVO)
SY-A (SYSTEM CONTROL)
PW-A (POWER SUPPLY)
TO MECHA
CN351 WH
CN350
CN352 BR
CN354 RE
CN304 BR
CN303 WH
CN302 WH
CN541 WH
CN842 BR
F/E HEAD
CN841 BR
MC-5
CN 01 WH
MH
CN 01 BR
MC
MC-4
CN831
T S LED(A)
T S LED(K)
MC-6
CN843
S-VHS TAPE SW
GND
CN803
CN802 BR
CN801
MC-1
CN822 WH
CN821
MC-3
M.L
ME.MO SW
CN291 (P)
AP-A (AUDIO PRE-AMP)
CN182 (P)
VP-1
CN181 (P)
VP-A (VIDEO PRE-AMP)
CN183
DRUM
CN511 WH
CN512 WH
PW-1 (POWER SUPPLY)
W1-13404/VP4HV-EBD
K J I H G F E D C B A
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23

3-2. VIDEO CIRCUIT BASIC BLOCK DIAGRAM

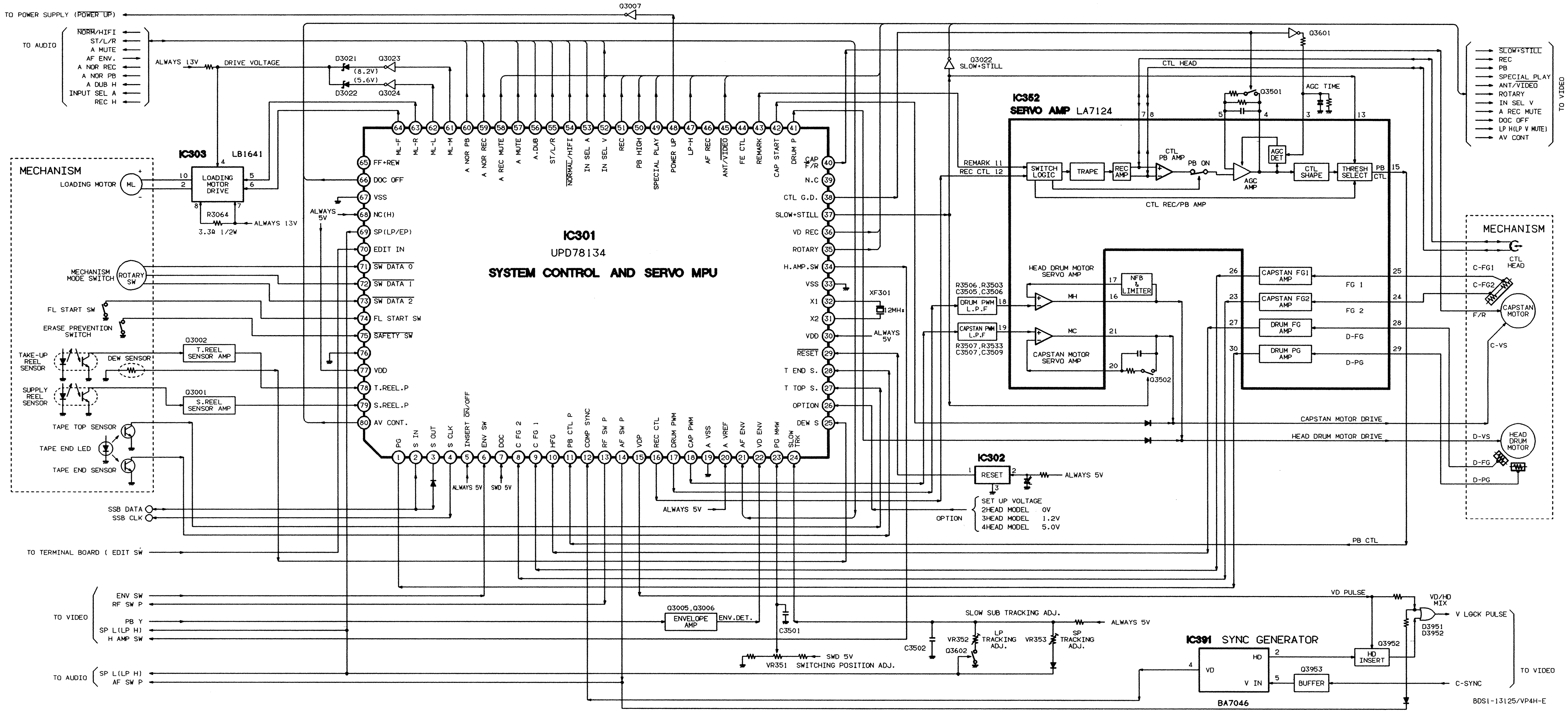


HEAD DRUM
CH2
V-HEAD(SP)
CH1
R.T
V-HEAD(LP)
VP-1
IC181 (LA7321) REC/PRE.AMP
AMP
SW REC ON
COMP.
REC/LP ON
RF SW P
H.AMP.SW
ENV.OUT
LP/SP
PB
REC
CURRENT AMP
PB ON
Y/C MIX AMP
ENV.SW
LP
PB 5V
REC 12V
RF SW PULSE
RF SWITCHING PULSE
HEAD AMP SWITCH
H.AMP.SW
Q1896
Q1895
TP183
Q1893
Q1894
TP181
R1801
CURRENT CHECK
TP182
ENV.
Q1851-Q1855
EQ AMP
Q1051
BUFFER
TO SYSCON FOR ATR
PB Y
PB Y-FM
VR182 REC Y
FILTER
VR181 REC C
Q1872 BUFFER
[REC Y-FM] TP103
Q1004
C1024
C1025
PB H
RF SW P.
CP-1 BOARD
IC101 (LA7340) Y-SIGNAL PROCESS
FM IN
FM AGC
DOUBLE LIMITER
FM DEMOD.
L.P.F
D.O.C DET.
DL
AGC 2
AMP
D.O.C PULSE
AGC
AGC 1 DET
REC (Y-FM)
1/2 fH CARRIER SHIFT
FM MODULATOR
FM OUT
5V DC
VR103 CARRIER
VR104 DEV.
WHITE/DARK CLIP
MAIN EMPHASIS
NL EMPHA
DETAIL EMPHA
REC(Y)
PB 5V
XF101 L.P.F 3MHZ
VR101 P.B LEVEL
Q1002 Q1003 AMP.
Q1001 BUFF.
CLAMP
Q1031 BUFFER
VR105 N.C.ADJ
L1031,Q1032 C1034-C1036
L.P.F
CCD 1H-DL
X2FSC
IC102
CORRELATION
LIM
D.O.C & NOIS CANCELL
D.O
NORMAL
NL DE-EMPHA
NOISE CANCELL
PICTURE CONTROL
6dB AMP
Y/C MIC
SYNC AMP
F.B. CLAMP
VIDEO AMP
VIDEO OUT
P.B Y
P.B CHROMA
MUTE OR VD-INSART
DELAY
SYNC SEP.
AGC CONT.
ATT
AGC. AMP
REC (VIDEO Y/C)
REC/EE VIDEO IN
SYNC OUT
CONTROL IN
CHROMA IN
VD IN
VIDEO SIGNAL IN
R1042
Q1041
V-LOCK PULSE (VLP) IN FROM SERVO
ASO PLUS OFF
COMPOSITE SYNC. TO SERVO
Q6003 Q6006 MOMENTARY MUTE
Q1631 Q1602 EQ AMP
Q1601 BUFFER
VD MUTE IC301 PIN13
VIDEO OUT TO RF UNIT
AV VIDEO OUT
CP-1 BOARD
IC111 (LA7332) CHROMA PROCESS
PB CHROMA IN
6dB AMP
A.C.C AMP.
BURST EMPHA DE-EMPHA
CARRIER BALANCE
MAIN CONVERTER
627KHZ
4.43MHZ
5.06MHZ
R/P DET
A.C.C DET.
KILLER
REC CHROMA OUT
VIDEO IN
XF111(1/3) 4.43MHZ B.P.F
Q1151 Q1103-Q1104 AMP
DL131 COMB FILTER
P.B ACK
CHROMA OUT
REC-C
VR102 SWD 5V EE LEVEL
L1104,L1105 C1124,C1125 C1281
L.P.F
BUFFER
Q1105,Q1106
PB C
Q1101 BUFFER
XF111(2/3) 1.4MHZ L.P.F
REC C
XF111 (3/3) 5.06MHZ B.P.F
ACK DET.
BURST ID-DET.
REC AFC
SW
REC APC
CONTROL
4.43MHZ VXO
4.43MHZ XO
4.43MHZ CW
4.43MHZ X-TAL X1101
SUB CONVERTER
CW
B-ID LOGIC
PB APC
3/4 LOCK PROTECT
FSC
Q1102 BUFFER
4.43MHZ FSC SIGNAL TO SERVO
90° PHASE SHIFT (PS)
B-ID
HD
X2
X2FSC TO IC102 1H-DL
1/8
PULSE GEN.
BGP 2
C-SYNC IN
PB SLD
BGP 1
5.06MHZ VCO
R1102,R1104 C1105-C1107
INTEG-RATION
MISLOCK OUT
PLL LOCK
SIGNAL DET.
SW 25
RF SW P
LP H
N/P/S DET.
SWD 5V
C1301
D1304
Q1301
Q1302
AD MUTE(S.PLAY)
D1303
TB-1 BOARD
IC852 (LA7221) INPUT SELECT
AUX VIDEO IN
EURO AV VIDEO IN
AUX H
MUTE
VIDEO AV IN
CP-1 BOARD
IC161 (LA7221) INPUT SELECT
INPUT SEL V
PB 5V
TUNER VIDEO IN
VIDEOTEXT DECODER TH-6 BOARD
BLUE
GREEN
RED
RGB OUTPUT
COMMUNICATION WITH IC301
VPT CLK
RXD
TXD
BDV1-13404/VP4HV-EBD

3-3. AUDIO CIRCUIT BASIC BLOCK DIAGRAM


CP-1 (AD-A) BOARD
IC231 UPC2354GF HIFI AUDIO, INPUT/OUTPUT SELECT
< INPUT SELECT >
AUDIO IN (L) (RCA-REAR)
BILINGUAL L
TU AUDIO (L)
AUX AD IN (L) (CN854 PIN6)
EURO AV AD IN (L) (CN853 PIN6)
AUX AD IN (R) (CN854 PIN2)
EURO AV AD IN (R) (CN853 PIN2)
AUDIO IN (R) (RCA-REAR)
TU AUDIO (R)
AUX H
FRONT H
VR270(LEVEL) ON THE AD-2 VR272(BALANCE)
REC LEVEL CTL VR
REC BALANCE VR
INPUT SEL V
INPUT SEL A
HI-FI/NORM
ST/L/R
IC851 (TB-1 BOARD)
INPUT SELECTOR
LCH SW
RCH SW
SWITCH CONTROL
LINE 1/LINE 2
LINE/SC/TUNER
REC(ST)/REC(BIL)/PB
VOL CTL
BAL VOL
L EVR
R EVR
MANUAL ON (ON)
ALC/MANUAL CONTROL
ALC DET
ALC ON (OFF)
NORMAL OUT
(Lch)
(Rch)
NR FILTER
V-I CONV
PEAK DET
LPF
CCA
FM FILTER
< PNR SECTION >
PB/EE
NR/FM FILTER ADJ
VR243 NR FILTER ADJ.
AUDIO LIMITER
VR235 PB LEVEL Lch
VR236 PB LEVEL Rch
HOLD TIME
HOLD
DOC PULSE
HOLD PULSE
ENV. DET.
CURRENT DET
AUTO/LINEAR
MOD
DE MOD
LIMITER
1.4MHZ BPF
1.8MHZ BPF
1.4MHZ/1.8MHZ BPF ADJ.
< MOD/DEM >
SW PULSE DELAY
AF SW PULSE
REC H
Q2514
BPF ADJ.
VR239
VR233
f=1.4MHZ ADJ.
f=1.8MHZ ADJ.
VR234
Q2652, Q2653 Lch/Rch MIX
PB NORMAL AUDIO SIG.
< OUTPUT SELECT >
HIFI /MIX/ NORMAL
NORMAL /MIX/ HIFI
L.ST
R.ST
MUTE
RF ALC
VR
H.P. CTL
IC233
NORMAL/MIX/HIFI
L/ST/R
Q2519, Q2518 HI-FI LED DRIVE
Q2651
D2511
D2512
Q2515
HI-FI L
(TRACKING SIG.) HI-FI ENV. TO SYSCON
EURO AV AD OUT(R)
EURO AV AD OUT(L)
CN853
AD RF OUT
AUDIO OUT(L)(RCA-REAR)
CN210
AUDIO OUT(R)(RCA-REAR)
A.MUTE H
A.MUTE
Q2404
Q2304
Q2507 Q2504
Q2303
Q2403
PRE-AMP UNIT.
IC291 UPC2350CS AF REC/PB AMP
AF REC CTL
REC MUTE ON/OFF
AMP
PB ON
AF SW P
HEAD SW
SP 23#/ LP 28#/
VCC
REC VCC
REC 12V
SWD 5V
TP291 CURRENT CHECK
CN186
CN253
CN291
AF HEAD
AF+ CH1
AF- CH2
NICAM DECODER
NORMAL AUDIO SELECT
TN-5 BOARD
NORMAL TU AUDIO
CN252
IC261 NORMAL AUDIO SELECTOR
A.DUB
INPUT SEL A
Q2654
NORMAL=0V/HI-FI=5V
ST=2.4V/Lch=5V/Rch=0V
CN251
CN271
AD-2 BOARD
TRACK.SIG
CN272 HEAD PHONE JACK
VR242 METER ADJ(R)
VR241 METER ADJ(L)
LEVEL METER
A2701
S2701
OFF LEVEL TRACKING
METER SW
V.REF (SWD 5V)
VR271
H.P. VOLUME
CN272 HI-FI L TO TM-1
MECHANISM BLOCK
AUDIO R/P HEAD
AUDIO E HEAD
FULL E HEAD
CN201
IC201 LA7294 NORMAL AUDIO
PB EQ
LP ON
EQUALIZE AMP
EE PB
REC
VR201 BIAS
POWER ON/OFF MUTE
REC AMP
T2001 Q2001
70K OSC
PUSH CURRENT PROTEC
RIPPLE FILTER
PEAKING
L2002 C2013 R2014
LP
SWD 12V
EE MUTE
AGC
ALC DET
PB MUTE
LINE AMP
LPF & LEVEL
C2006 R2006
R2091 R2092
R2009, R2624 C2009, C2618 ATTACK RECOVERY TIME CR
R2010 R2011 ALC LEVEL
R2012 R2013 ALC LEVEL
MUTING CONTROL
REC MUTE
LP CONTROL
PB/EE CONTROL
REC/EE CONTROL
LP H
A-NOR-PB
A-NOR-REC
8DA1-13105/VP4H-E

3-4. SYSTEM CONTROL & SERVO CIRCUIT BASIC BLOCK DIAGRAM


TO POWER SUPPLY (POWER UP)
Q3007
TO AUDIO
NORM/HIFI
ST/L/R
A MUTE
AF ENV.
A NOR REC
A NOR PB
A DUB H
INPUT SEL A
REC H
ALWAYS 13V
DRIVE VOLTAGE
D3021
D3022
Q3023
Q3024
(8.2V)
(5.6V)
Q3022
SLOW•STILL
Q3601
CTL HEAD
Q3501
AGC TIME
IC352
SERVO AMP LA7124
MECHANISM
LOADING MOTOR
ML
IC303
LB1641
LOADING MOTOR DRIVE
R3064
3.3Ω 1/2W
ALWAYS 13V
ALWAYS 5V
IC301
UPD78134
SYSTEM CONTROL AND SERVO MPU
ML-F
ML-R
ML-L
ML-M
A NOR PB
A NOR REC
A REC MUTE
A MUTE
A.DUB
ST/L/R
NORMAL/HIFI
IN SEL A
IN SEL V
REC
PB HIGH
SPECIAL PLAY
POWER UP
LP-H
AF REC
ANT/VIDEO
FE CTL
REMARK
CAP START
DRUM P
FF•REW
DOC OFF
VSS
NC(H)
SP(LP/EP)
EDIT IN
SW DATA 0
SW DATA 1
SW DATA 2
FL START SW
SAFETY SW
VDD
T.REEL.P
S.REEL.P
AV CONT.
CAP F/R
N.C
CTL G.D.
SLOW•STILL
VD REC
ROTARY
H.AMP.SW
VSS
X1
X2
VDD
RESET
T END S.
T TOP S.
OPTION
DEW S
XF301
12MHz
ALWAYS 5V
PG
S IN
S OUT
S CLK
INSERT ON/OFF
ENV SW
DOC
C FG 2
C FG 1
HFG
PB CTL P
COMP SYNC
RF SW P
AF SW P
VDP
REC CTL
DRUM PWM
CAP PWM
A VSS
A VREF
AF ENV
VD ENV
PG MMW
SLOW TRK
ALWAYS 5V
SWD 5V
MECHANISM MODE SWITCH
ROTARY SW
FL START SW
ERASE PREVENTION SWITCH
TAKE-UP REEL SENSOR
DEW SENSOR
Q3002
T.REEL SENSOR AMP
SUPPLY REEL SENSOR
Q3001
S.REEL SENSOR AMP
TAPE TOP SENSOR
TAPE END LED
TAPE END SENSOR
SSB DATA
SSB CLK
TO TERMINAL BOARD (EDIT SW
TO VIDEO
ENV SW
RF SW P
PB Y
SP L(LP H)
H AMP SW
TO AUDIO
SP L(LP H)
AF SW P
ALWAYS 5V
Q3005,Q3006
ENVELOPE AMP
ENV.DET.
C3501
VR351 SWITCHING POSITION ADJ.
SWD 5V
REMARK 11
REC CTL 12
SWITCH LOGIC
TRAPE
REC AMP
CTL PB AMP
PB ON
AGC AMP
AGC DET
CTL SHAPE
THRESH SELECT
PB CTL
CTL REC/PB AMP
HEAD DRUM MOTOR SERVO AMP
R3506,R3503
C3505,C3506
DRUM PWM L.P.F
CAPSTAN PWM L.P.F
R3507,R3533
C3507,C3509
MH
MC
NFB & LIMITER
CAPSTAN MOTOR SERVO AMP
Q3502
CAPSTAN FG1 AMP
CAPSTAN FG2 AMP
DRUM FG AMP
DRUM PG AMP
FG 1
FG 2
D-FG
D-PG
MECHANISM
CTL HEAD
C-FG1
C-FG2
F/R
CAPSTAN MOTOR
C-VS
CAPSTAN MOTOR DRIVE
HEAD DRUM MOTOR DRIVE
D-VS
HEAD DRUM MOTOR
D-FG
D-PG
IC302
RESET
ALWAYS 5V
SET UP VOLTAGE
2HEAD MODEL 0V
3HEAD MODEL 1.2V
4HEAD MODEL 5.0V
OPTION
ALWAYS 5V
PB CTL
TO VIDEO
SLOW•STILL
REC
PB
SPECIAL PLAY
ANT/VIDEO
ROTARY
IN SEL V
A REC MUTE
DOC OFF
LP H(LP V MUTE)
AV CONT
VD PULSE
VD/HD MIX
V LOCK PULSE
D3951
D3952
SLOW SUB TRACKING ADJ.
ALWAYS 5V
C3502
VR352
LP TRACKING ADJ.
VR353
SP TRACKING ADJ.
Q3602
IC391 SYNC GENERATOR
VD
HD
V IN
BA7046
Q3952
HD INSERT
Q3953
BUFFER
C-SYNC
TO VIDEO
BDS1-13125/VP4H-E

4. Mechanism Maintenance and Checking

4-1. PERIODIC CHECKING AND MAINTENANCE ITEMS AND SERVICE JIGS

The following maintenance and periodic checking procedures are recommended to ensure proper operation, and to protect the tape from dirt and damage. Also, these procedures should always be followed after repairing the unit.

4-1-1. PERIODIC CHECK ITEMS

○ Cleaning ◎ Confirmation △ Lubrication

Usage Time (hours) Part		500	1000	1500	2000	2500	3000	3500	4000	4500	5000	Remarks
Tape Guide System	Tape running surfaces	○	○	○	○	○	○	○	○	○	○	
	ACE head	○	○	○	○	○	○	○	○	○	○	
	Drum (cylinder)	○	○	○	○	○	○	○	○	○	○	Head life depends heavily on operating conditions.
Drive System	Loading belt	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	
	Reel drive belt	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	
	Intermediate gear, pulley axles		△		△		△		△		△	Absolutely avoid oil on tape running surfaces.
	Capstan axles		△		△		△		△		△	
	Loading motor		◎		◎		◎		◎		◎	
Perfor-mance Check	Back tension torque		◎		◎		◎		◎		◎	50 ± 10 g-cm
	Brake system		◎		◎		◎		◎		◎	
	FF, REW, REV, PLAY torque		◎		◎		◎		◎		◎	FWD : 600 g-cm and over REW : 750 g-cm and over PLAY : 100 to 160 g-cm REV : 150 to 240 g-cm

Note: The back tension torque is the value that has been measured by the cassette torque meter (VHJ-0016). The torque of FF, REV, REW, and PLAY represent those measured with them locked by the torque guage. FF and REW are values 2 seconds after starting.

4-1-2. CLEANING

1. Drum (COMPL CYLINDER) and Video Heads (See Fig. 4-1-1.)

1) Wrap a chamois leather around your finger and moisten it with methyl alcohol.
2) Move the chamois leather to left and right several times on the video head to clean. There is a video head also on the opposite side, so clean it likewise. In Hi-Fi models, clean the audio head also.
3) Clean the tape path surface of the cylinder in the same way.

Note: Always turn power off before cleaning. Never move the chamois leather vertically or apply too much force to the head ; it may be damaged.

2. Cleaning of the Tape Guide System (See Fig. 4-1-2.)

Set the EJECT mode and clean the tape guide system (tape guides, impedance roller, FTE head, ACE head, pinch rollers, capstan axles, etc.) with a chamois leather moistened with methyl alcohol.

Note: Make sure that no oil, grease, etc. adhere to the chamois leather and that heads are not damaged.

3. Cleaning of the Drive System

Clean the drive system (loading belt, reel drive belt, pulley, supply reel table, etc.) with a soft cloth moistened with methyl alcohol.

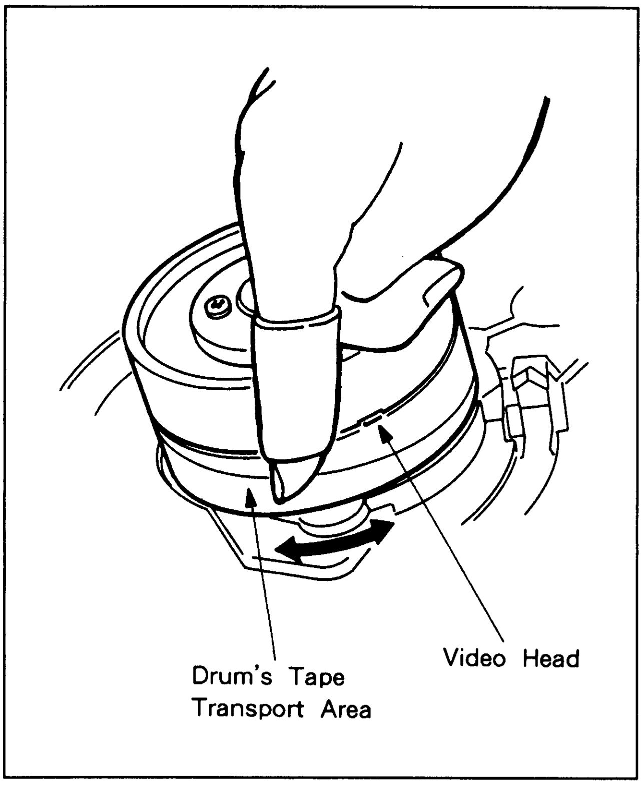

Video Head
Drum's Tape Transport Area

Fig. 4-1-1.

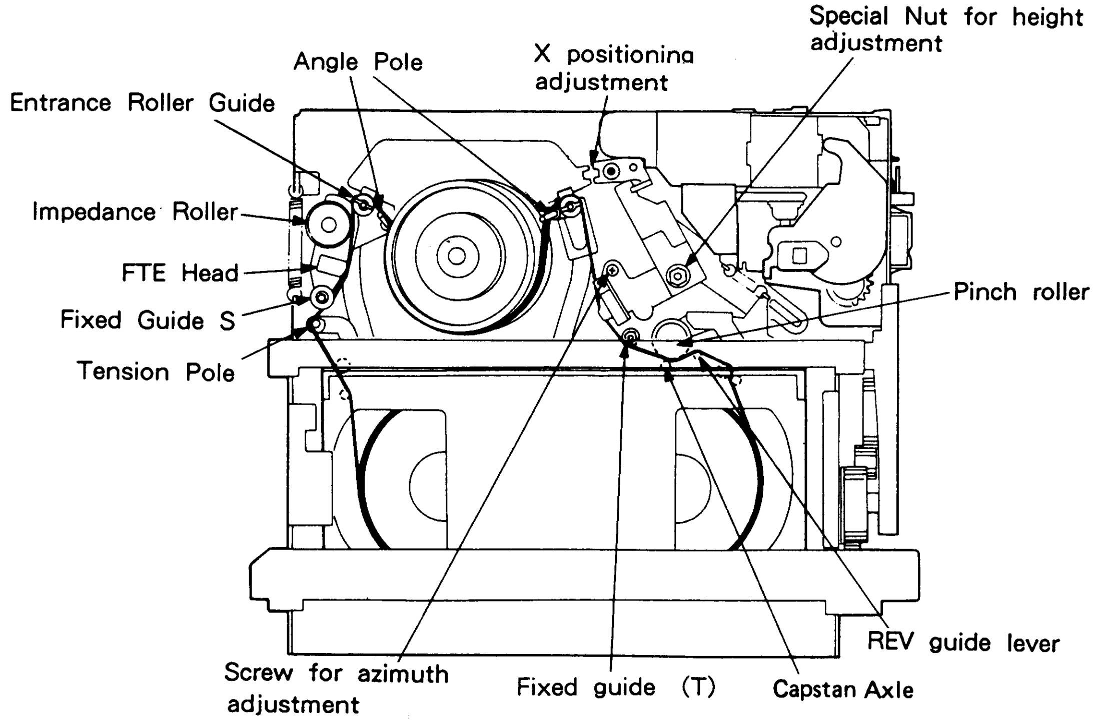
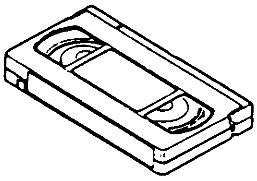
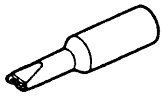
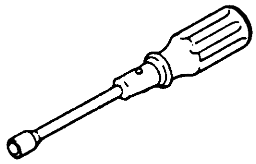
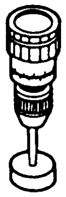
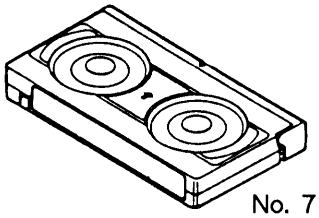
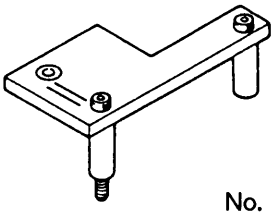
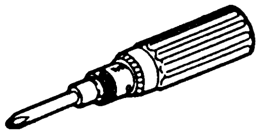
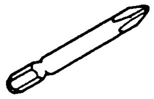
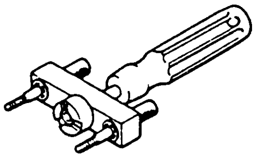
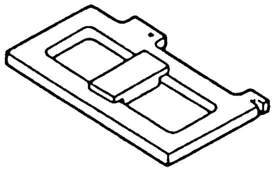
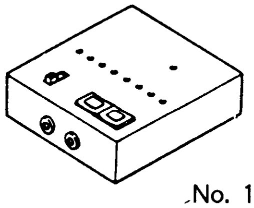
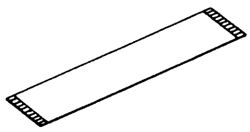
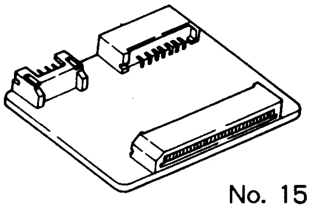
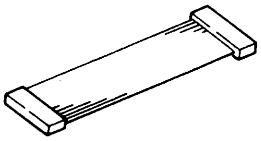
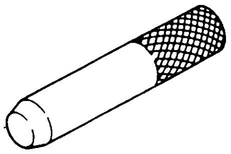

Special Nut for height adjustment
Angle Pole
X positioning adjustment
Entrance Roller Guide
Impedance Roller
FTE Head
Fixed Guide S
Tension Pole
Pinch roller
REV guide lever
Screw for azimuth adjustment
Fixed guide (T)
Capstan Axle

Fig. 4-1-2. Cleaning

4-1-3. Service Jigs

No.	Jig	Jig No.	Remarks
1	Alignment tape	VHJ-0009	SP monoscope, 7kHz (normal)
2	Eccentric screwdriver	VHJ-0003	For tape path adjustment
3	Nut box	VHJ-0048	For fixed guide removal
4	Torque gauge	VHJ-0004	For reel take-up torque measurement
5	Cassette torquemeter	VHJ-0016	For back tension torque measurement
6	Position adjustment gauge	VHJ-0049	For position adjustment
7	Torque gauge screwdriver	VHJ-0014	For screw fastening torque adjustment
8	3mm dia. bit for torque screwdriver	VHJ-0045	Spare bit for the torque gauge screwdriver
9	Video head removing tool	VHJ-0041	For upper drum removal
10	Cassette stand plate gauge	VHJ-0001	For reel height adjustment
11	Mode selector	VHJ-0050	For mechanism mode selection
12	26-pin flexible flat cable	VHJ-0064	Spare cable for mode selector
13	Mode selector relay board (with VHJ-0076)	VHJ-0075	Relay board for mode selector
14	7-wire flat cable	VHJ-0076	Extension cable for relay board
15	REV guide lever removing tool	VHJ-0073	For REV guide lever removal

VHJ-0005, VHJ-0006, VHJ-0007  No. 1, 2, 3	VHJ-0003  No. 4	VHJ-0048  No. 5	VHJ-0004  No. 6
VHJ-0016  No. 7	VHJ-0049  No. 8	VHJ-0014  No. 9	VHJ-0045  No. 10
VHJ-0041  No. 11	VHJ-0001  No. 12	VHJ-0050  No. 13	VHJ-0064  No. 14
VHJ-0075  No. 15	VHJ-0076  No. 16	VHJ-0073  No. 17	

4-2. MODE SELECTOR (VHJ-0050) HANDLING INSTRUCTIONS

The mode selector drives the loading motor of the P91 mechanism with its internal batteries (UM-2 × 4 = 6V), using LEDS to indicate the mode (EJECT, INITIAL, BRAKE, STOP/REW/FWD, STILL, PLAY, IDLER, REV) simultaneously with EJECT⇔REV mode changes.

Instead of the internal batteries, an external DC 6V power supply can also be used.

4-2-1. PART NAMES (See Fig. 4-2-1)

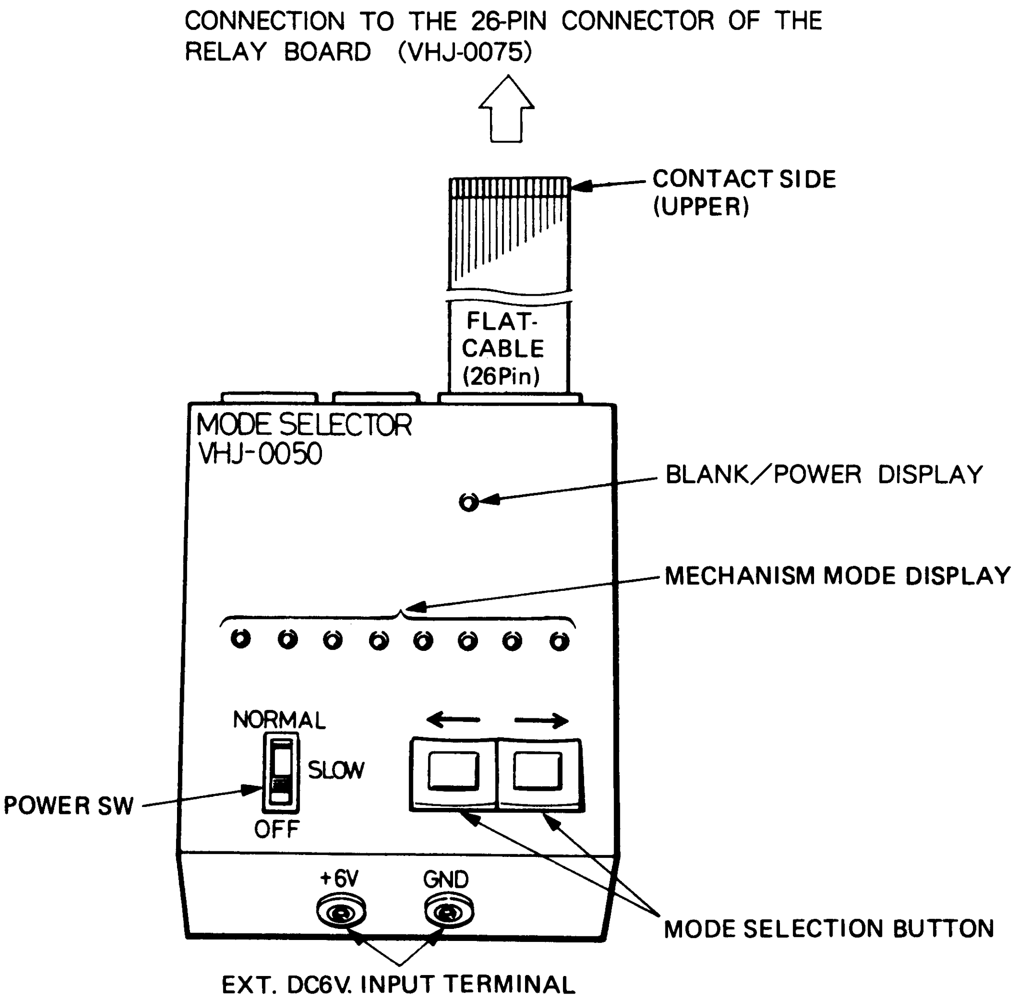

CONNECTION TO THE 26-PIN CONNECTOR OF THE RELAY BOARD (VHJ-0075)
CONTACT SIDE (UPPER)
FLAT-CABLE (26Pin)
MODE SELECTOR VHJ-0050
BLANK/POWER DISPLAY
MECHANISM MODE DISPLAY
NORMAL
SLOW
OFF
POWER SW
←
→
+6V
GND
MODE SELECTION BUTTON
EXT. DC6V. INPUT TERMINAL

Fig. 4-2-1.

4-2-2. CONNECTION METHOD (See Fig. 4-2-2)

1) Remove the 7-wire cable connected from the system control circuit to the connector (CN822) of the MC-3 board.
2) Connect the 7-wire cable (VHJ-0076) between the connector (CN822) of the MC-3 board and the 7-pin connector of the Mode Selector Connection Board (VHJ-0075).
3) Remove the 6-wire cable extending from the cassette holder section from the connector of the System Control Circuit Board and connect it to the 6-pin connector of the Mode Selector Connection Board (VHJ-0075).
4) Connect a supplied 26-pin flat cable (VHJ-0064) of the mode selector (VHJ-0050) between the mode selector body and the 26-pin connector of the Connection Board (VHJ-0075).

Note: Care should be taken to avoid mistaking the direction of the contacting side when connecting a flexible flat cable.

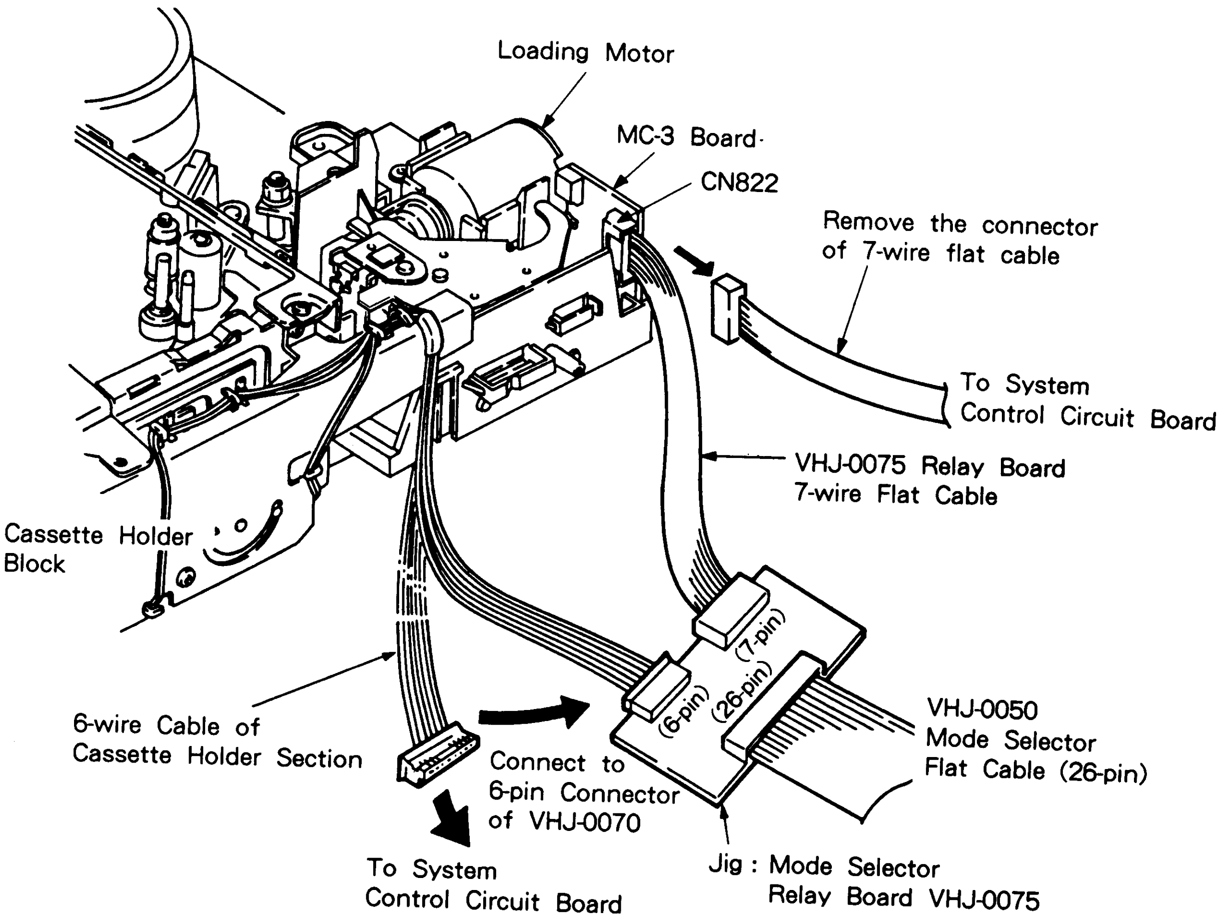

Loading Motor
MC-3 Board
CN822
Remove the connector of 7-wire flat cable
To System Control Circuit Board
VHJ-0075 Relay Board 7-wire Flat Cable
Cassette Holder Block
(7-pin)
(26-pin)
(6-pin)
VHJ-0050 Mode Selector Flat Cable (26-pin)
6-wire Cable of Cassette Holder Section
Connect to 6-pin Connector of VHJ-0070
To System Control Circuit Board
Jig : Mode Selector Relay Board VHJ-0075

Fig. 4-2-2. Connection

4-2-3. HANDLING METHOD

1) The mode changes in sequence of EJECT, INITIAL, BRAKE, STOP/REW/FF, STILL, PLAY, IDLER, REV when the right side (⇨) of the mode selector button is kept on pressing.
2) To change the mode from REV to EJECT, press the left side (⇨) of the mode selector button to select the desired mode.
3) In the mid position of each mode during a shift to other mode, the "BLANK" LED lights. But the "PLAY", "IDLER", "REV" LEDs light between the EJECT mode and the INITIAL mode. Be sure therefore to check the mechanism body to see just what state the mechanism is in.
   Incidentally, if the mode selector is not connected to the mechanism, the "BLANK" LED lights to indicate the power ON.
4) The SLOW position of POWER switch makes relatively slow motions in comparison with the NORMAL position.

Note 1: The mode selector drives the loading motor only, not affecting the head drum motor and the capstan motor. When using the mode selector with a cassette loaded, turn the capstan motor manually to remove tape slackness, preventing tape entanglement.

Note 2: If the Left side (⇦) of the mode selector (VHJ-0050) key is kept pressed with the COMPL cassette mechanism removed, it might get past the EJECT position, causing the front helical gear and the front worm gear to get disengaged.

In this condition, since the front helical gear will not turn even if the right side (⇨) of the mode selector key is pressed, rotate (push) the front helical gear clockwise by hand and engage it with the front worm gear. As there is a misalignment between the mechanism main body operation mode (indicated by the mode selector indicator lamps) and the front loading mechanism operation mode, keep the right side (⇨) of the mode selector key pressed until the front helical gear and the front loading gear of the front loading mechanism get back to the initial condition. (Refer to A and B in Fig. 2-3-2 of section 2-3-2. Loading Motor.)

When the front loading mechanism returns to the initial condition, operation mode of the whole mechanism gets back to normal, matching the mode shown by the mode indicator lamps (mode EJECT would not be properly indicated during eject).

Sometimes, engagement of the front helical gear with the front worm gear is delayed and operation mode. The mechanism main body gets too much ahead and the front loading mechanism mode cannot be switched to the initial condition. In that case, press the Left side (⇦) of the mode selector key, setting the mechanism main body operation mode back to EJECT (rotation of the mode cam and the MAIN CAM stops).

Note 3: The mode indicator lamps show the mechanism operation mode, but the EJECT lamp may sometimes fail to indicate the actual mechanism operation mode.

When setting the mechanism to the EJECT or INITIAL mode for dismounting or reassembling, fine adjustment of the each gear and cam, etc., marking positions is required after the mode indicator lamp has lighted up. Perform this with the mode selector switch in the SLOW position.

5. Mechanism Adjustment

5-1. OPERATING THE MECHANISM WITH NO CASSETTE INSERTED (See Fig. 5-1-1.)

1) Attach black vinyl tape to the T. END and T. TOP sensors to prevent light from entering.
2) Push the TRAY LOCK LEVER in the direction of the arrow to maintain the unlocked condition. Release the lever just before the TRAY starts moving down.
3) In this condition, operation is possible in every mode. However, the following procedures are necessary to operate the unit in the REC, REW and R-SEARCH modes.

REC mode :	Push the SAFETY SW LEVER to turn the SAFETY SWITCH (Erasure Prevention Switch) ON, then press the REC button. If the SAFETY SWITCH is not turned ON, the unit will enter the EJECT mode.
REW/R-SEARCH :	After pressing the REW button, turn the TAKE-UP REEL ASS'Y by hand. Otherwise, the reel sensor will operate, setting into the INITIAL mode after 2 to 3 seconds.

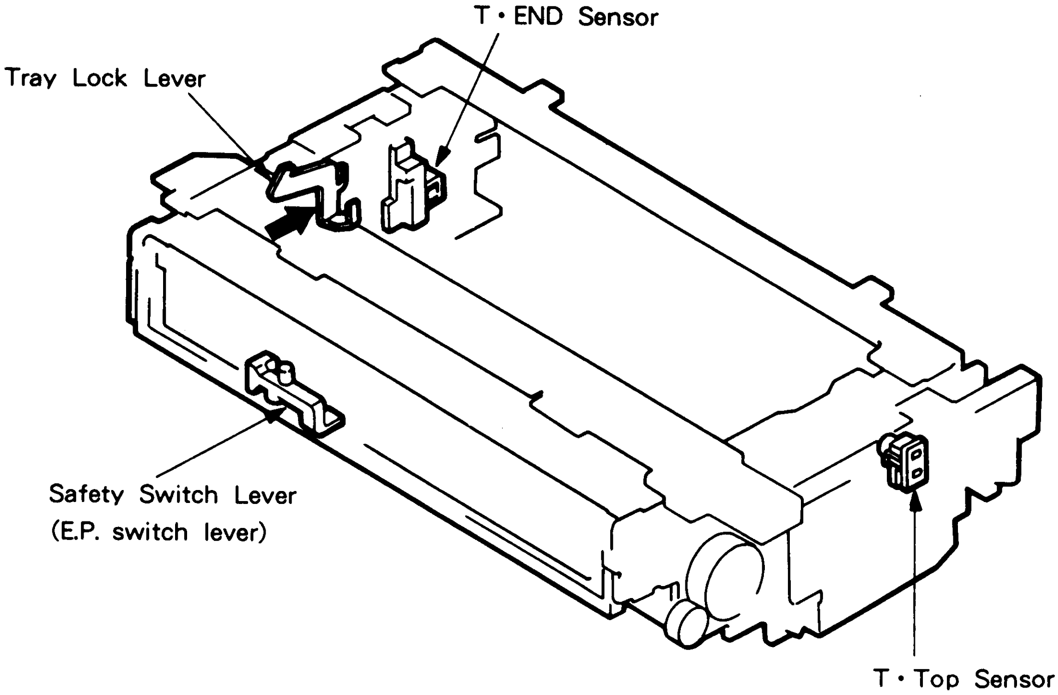


Fig. 5-1-1. Preparations for Adjustment

5-2. REEL TABLE HEIGHT ADJUSTMENT AND TORQUE CHECK

5-2-1. REEL TABLE HEIGHT (See Fig. 5-2-1.)

If the SUPPLY REEL ASS'Y or the TAKE-UP REEL ASS'Y is replaced, it will be necessary to adjust the REEL TABLE height.

(1) Remove the COMPL CASSETTE MECHANISM as instructed in 2-2-1.
(2) Attach the cassette stand plate gauge (VHJ-0001) and slide the gauge in the direction of the arrows.
(3) Confirm that, when the gauge stops, the REEL TABLEs are not in contact with surface A of the plate and are in contact with surface B.
(4) If the REEL TABLE is in contact with surface A, remove a spacer and check again.
(5) If the REEL TABLE is not in contact with surface B, add a spacer and check again.
(6) Remove the cassette stand plate gauge.
(7) Set the EJECT mode with the mode selector.
(8) Mount the COMPL CASSETTE MECHANISM as instructed in 2-2-1.

Note:

- Adjust the reel table height by adding or removing spacers (0.13t, 0.25t, 0.3t, 0.4t and 0.5t) as appropriate so that the height meets the specifications. Use the same method for both the TAKE-UP REEL TABLE and the SUPPLY REEL TABLE.
  (The 0.5t washer is included as the standard washer for the SUPPLY REEL ASS'Y. The 0.4t washer is included as the standard washer for the TAKE-UP REEL ASS'Y.)
- If the height of the reel table is not within the specified value, the tape edge might be damaged as a result, or the tape path adjustment might not be possible to make.

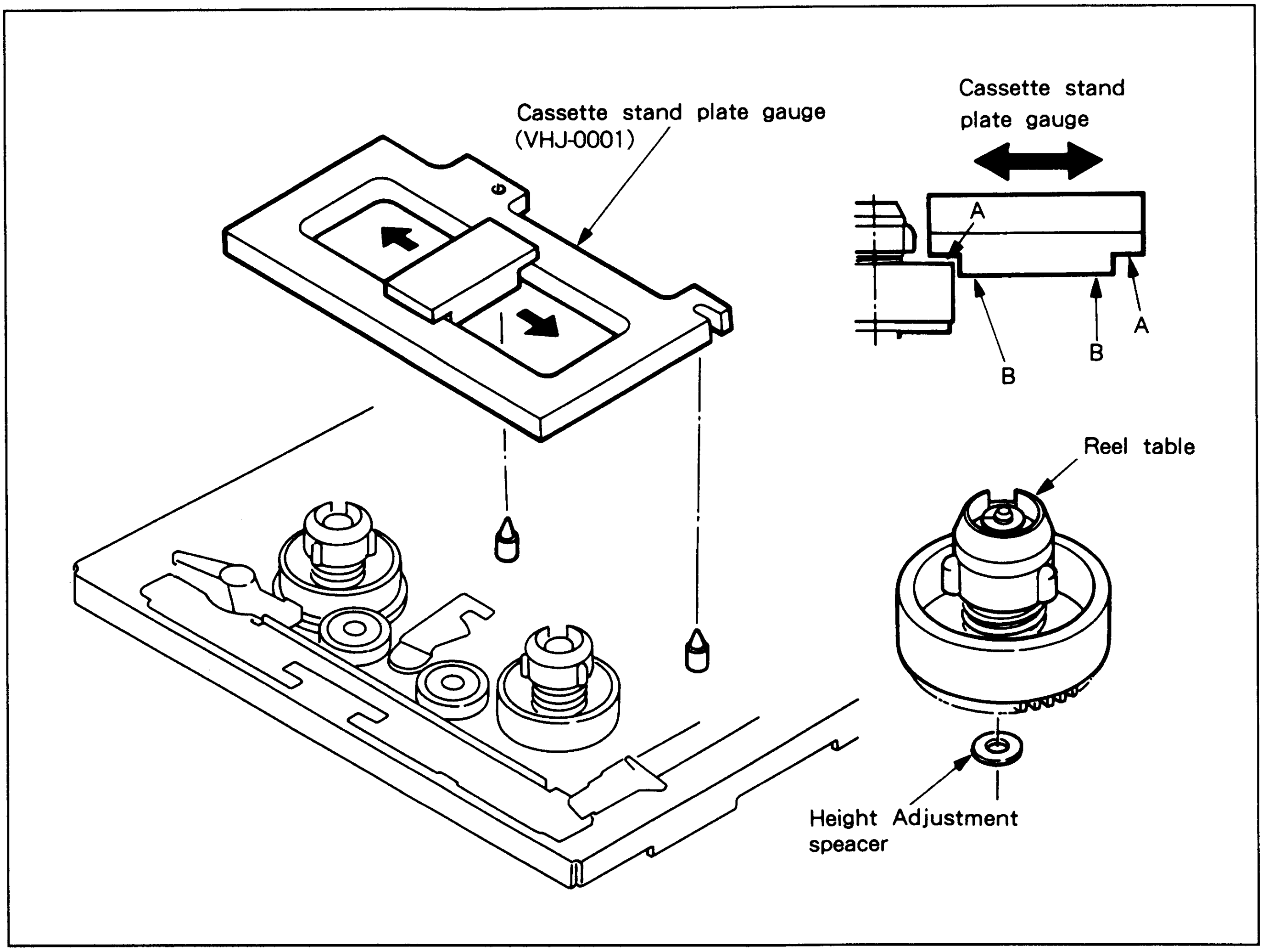


Fig. 5-2-1. Reel Table Height Adjustment

5-2-2. TORQUE CHECK (See Fig. 5-2-2.)

1) Set the unit to operating condition without a cassette inserted as instructed in 5-1.
2) Measure the SUPPLY REEL TABLE torque in the REW mode, and confirm that it is 750 g-cm or more. Perform this measurement keeping the torque gauge in a fixed position with your hand (locked torque).
3) Measure the TAKE-UP REEL TABLE torque in the F.FWD mode, and confirm that it is 600 g-cm or more (locked torque).
4) Measure the TAKE-UP REEL TABLE torque in the playback mode (SP tape speed), and confirm that it is within 100 through 160 g-cm (locked torque).
5) Measure the SUPPLY REEL TABLE torque in the REV (R-SEACH) mode, and confirm that it is within 150 through 240 g-cm (locked torque).
6) After confirming that torque readings are within the specifications for each mode, check the following :
   ⓐ Dirt on the capstan motor and the REEL PULLEY groove.
   ⓑ Deterioration of the REEL DRIVE BELT.
   ⓒ Deterioration of the FRICTION GEAR ASS'Y felt (torque during playback).
   ⓓ Wear and damage of the COMPL CLUTCH MECHANISM and the reel drive system gears.

Note 1: Items ⓑ, ⓒ and ⓓ require replacement if found defective.

Note 2: The measured value of torque during FF and REW represents the value 2 seconds after starting.

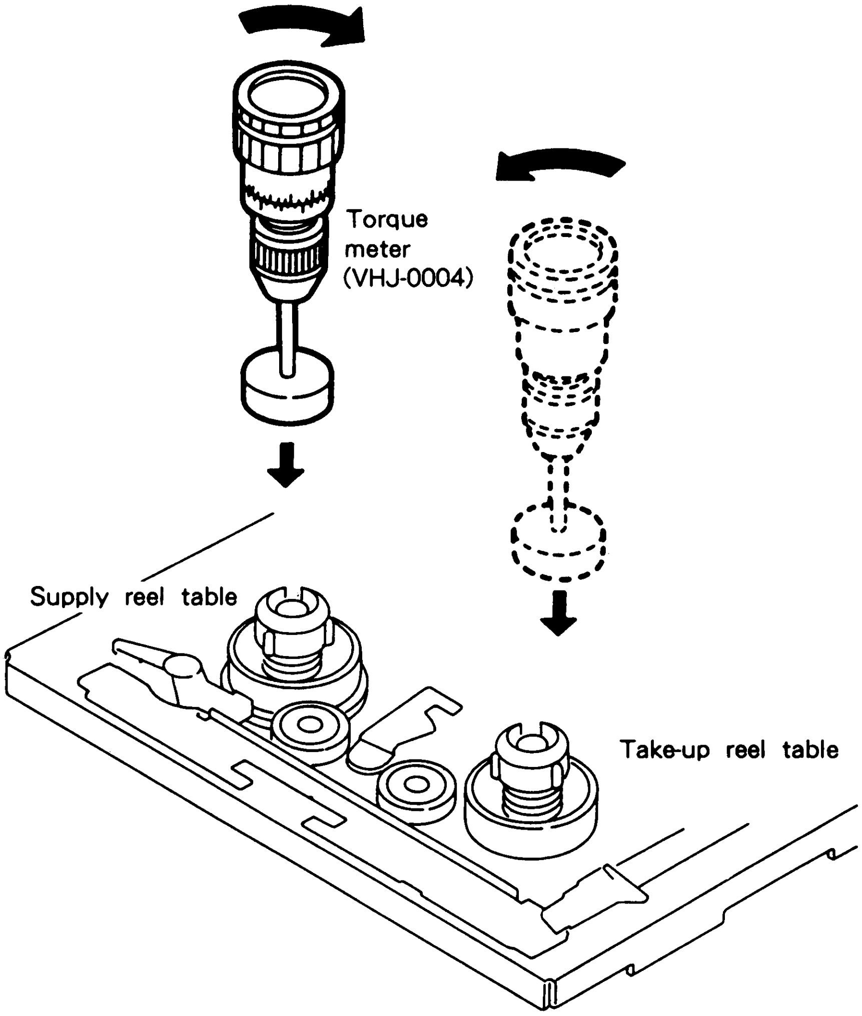


Fig. 5-2-2. Checking REW/FF/PLAY Torque

5-3. TENSION POLE (BACK TENSION GUIDE) POSITION ADJUSTMENT AND BACK TENSION TORQUE CHECK

5-3-1. TENSION POLE (BACK TENSION GUIDE) POSITION ADJUSTMENT (See Fig. 5-3-1.)

1) Remove the COMPL CASSETTE MECHANISM as instructed in 2-2-1.
2) Set the PLAY mode with the mode selector (VHJ-0050).
3) Attach the position adjustment gauge (VHJ-0049) ①.
4) Confirm that the tension pole ② is within the position adjustment gauge frame.
5) In case the tension pole is not within the above-mentioned frame, adjust it by loosening the screw ④ a little and changing the mounting position of the BAND HOLDER ⑤ in the direction of the arrow Ⓐ.
6) Remove the position adjustment gauge ①.
7) Set the EJECT mode with the mode selector.
8) Mount the COMPL CASSETTE MECHANISM as instructed in 2-2-1.
9) Confirm that back tension torque is within 50 ± 10 g-cm, as instructed in 5-3-2 below.

5-3-2. BACK TENSION TORQUE CHECK (See Fig. 5-3-1.)

1) Attach the cassette torquemeter (VHJ-0016) and set the PLAY mode.
2) Confirm that back tension torque is within 50 ± 10 g-cm.
3) In case back tension torque does not meet the above specification, proceed as follows :
ⓐ Clean the portion where the brake band (BAND HOLDER ASS'Y) ⑦ of the SUPPLY REEL ASS'Y ⑥ makes contact.
ⓑ Confirm that the brake band of the BAND HOLDER ASS'Y ⑦ does not make wear and that it is clean. If wear or dirt is found, replace the band holder assembly ⑦ as instructed in 2-7-3.
ⓒ Replace the TENSION LEVER ASS'Y SPRING COIL ⑧.
4) Perform the Tension Pole Position Adjustment after performing ⓐ, ⓑ and ⓒ.

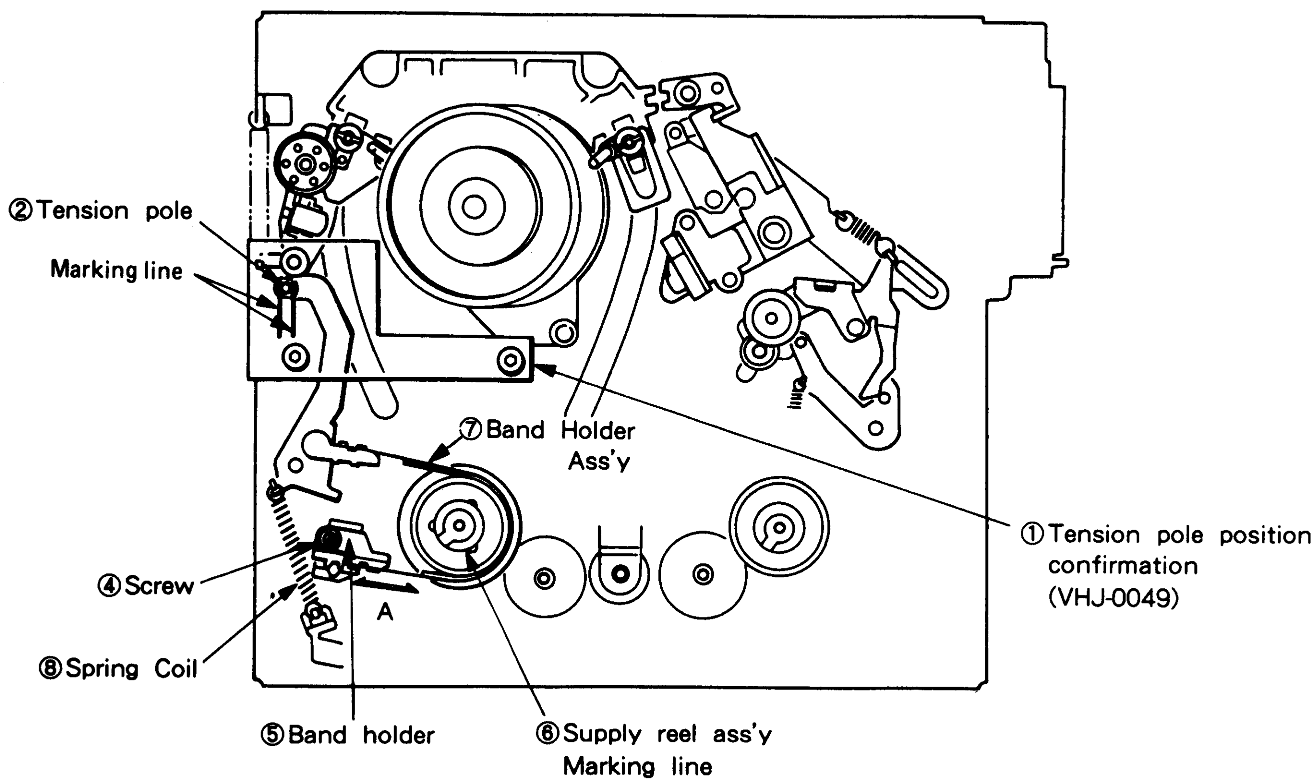

②Tension pole
Marking line
⑦Band Holder Ass'y
①Tension pole position confirmation (VHJ-0049)
④Screw
A
⑧Spring Coil
⑤Band holder
⑥Supply reel ass'y Marking line

Fig. 5-3-1. Tension Pole Positioning Adjustment

5-4. TAPE PATH ADJUSTMENT

The tape path mechanism is precisely adjusted at the factory. Normally no readjustment is required, but checking and/or adjustment is necessary when parts of the tape path mechanism among those shown in the figure below (See Fig. 5-4-1.) have been removed or replaced after a long period of use.
This operation consists of adjusting the various guides so that the tape drawn out from the supply reel runs smoothly along the DRUM (CYLINDER) lead surface. A way of grasping the tape path condition by electronic means is monitoring the video head output envelope waveform with an oscilloscope. However, the fact that visual observation is essential in order to know whether the tape is running through the various guides in a smooth and natural way should be kept in mind when checking and adjusting.
Also remember that the position of tape guides is not greatly affected by the replacement of the UPPER DRUM (UPPER CYLINDER) or the COMPL DRUM (COMPL CYLINDER), provided that it is correctly performed, and that only the replaced parts should be adjusted after replacing a tape guide or COMPL HEAD BRACKET, since the position of the other tape guides shall not change considerably.

5-4-1. PREPARATIONS FOR ADJUSTMENT

(1) Clean the tape transport surfaces. (See Fig. 5-4-1.)
(2) Connect the oscilloscope. Connect the channel 1 probe to the envelope waveform test point, and the channel 2 probe to the SW25 (RF SW P) test point. During adjustment, apply a trigger to the L side of the SW25 (RF SW P) in order to monitor the waveform output from channel 1 of the video head.

Note: Since oscilloscope connection points differ according to the model, refer to the "TEST POINT FOR TAPE PATH ADJUSTMENT" in the section 6 ELECTRICAL ADJUSTMENT.

(3) Use a dentist's mirror for visual observation of tape path condition.
(4) Use an eccentric driver (VHJ - 0003) for adjustment of the guide rollers.
(5) When adjusting height of the guide rollers or COMPL HEAD BRACKET, turn the special nut or the upper flange clockwise to push the tape downward, and counterclockwise to make the tape rise up.
(6) Do not use damaged cassette tapes for tape path adjustment.

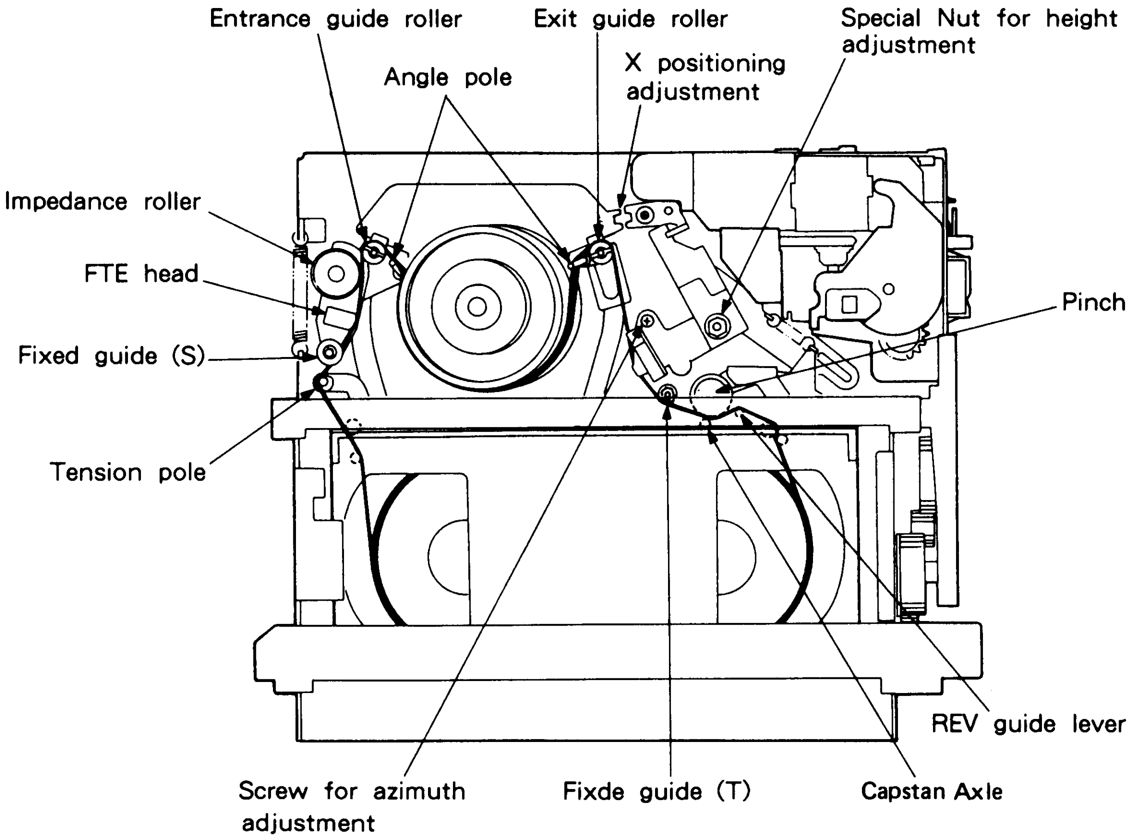

Entrance guide roller
Exit guide roller
Special Nut for height adjustment
Angle pole
X positioning adjustment
Impedance roller
FTE head
Fixed guide (S)
Tension pole
Pinch roller
REV guide lever
Screw for azimuth adjustment
Fixde guide (T)
Capstan Axle

Fig. 5-4-1. Preparation for Adjustment

5-4-2. ADJUSTMENT BY VISUAL OBSERVATION AFTER GUIDE ROLLER OR COMPL HEAD BRACKET REPLACEMENT

Perform this adjustment after removing or replacing any of the above parts. Only for the replaced or removed parts, play back an alignment tape (VHJ-0009) beforehand and adjust height by visual observation.

(1) Guide Rollers (See Fig. 5-4-2.)
The tape should not be curled by the guide roller upper and lower flanges. It should also run smoothly, without moving up and down on the DRUM (CYLINDER) lead surface.

Note: An excessive guide roller pressure may cause tape damage.

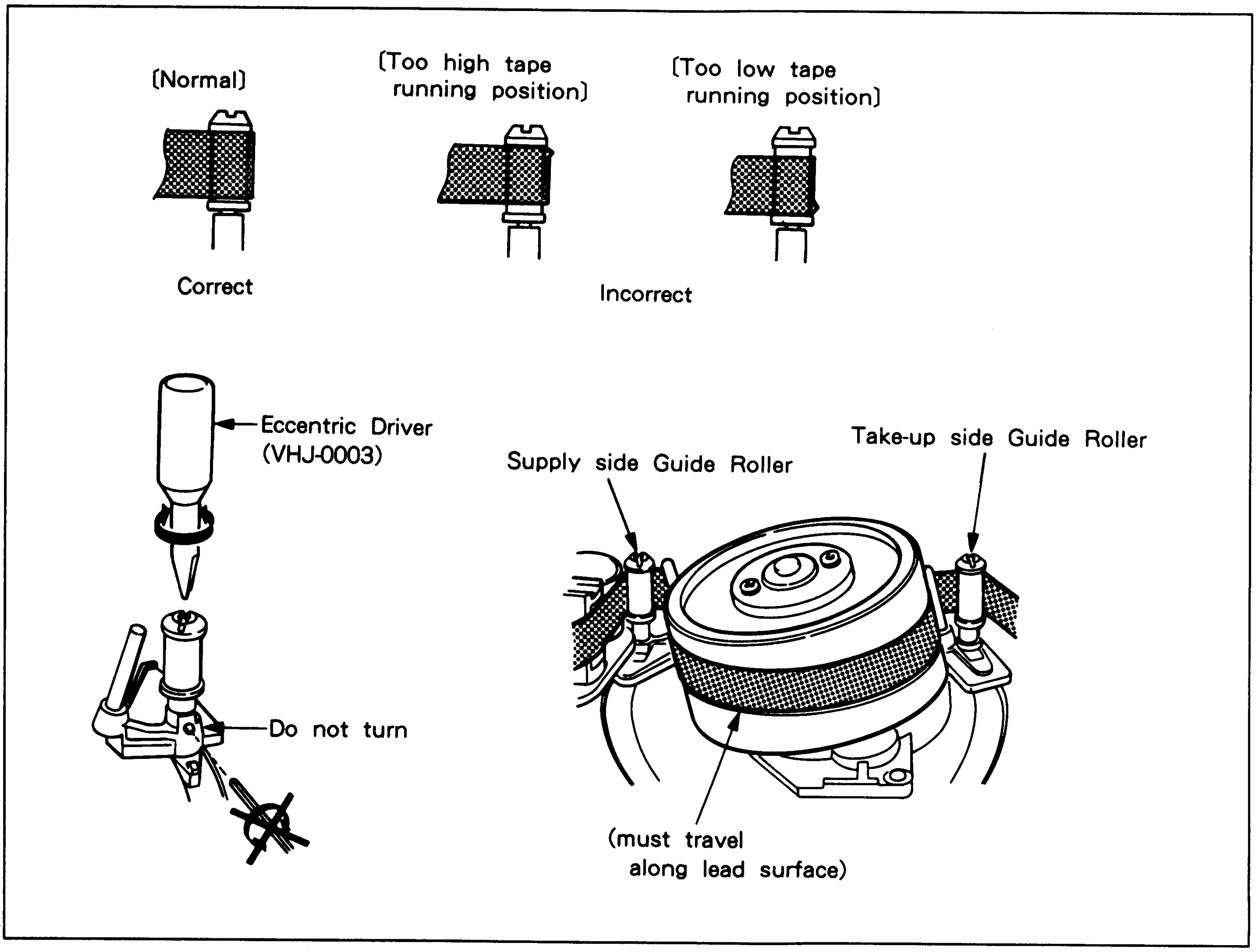

〔Normal〕
〔Too high tape running position〕
〔Too low tape running position〕
Correct
Incorrect
Eccentric Driver (VHJ-0003)
Do not turn
Supply side Guide Roller
Take-up side Guide Roller
(must travel along lead surface)

Fig. 5-4-2. (1) Pre-set for Guide Roller

(2) COMPL Head Bracket (ACE Head) (See Fig. 5-4-3.) Adjust the ACE Head Height Adjustment nut so that the tape edge runs between the audio head upper end and the control head lower end. Gaps A and B should be of about the same width. Since at this point it is only required that the control signal is picked up and the servo circuit works normally, no adjusting screws except the COMPL HEAD BRACKET special nut should be touched.

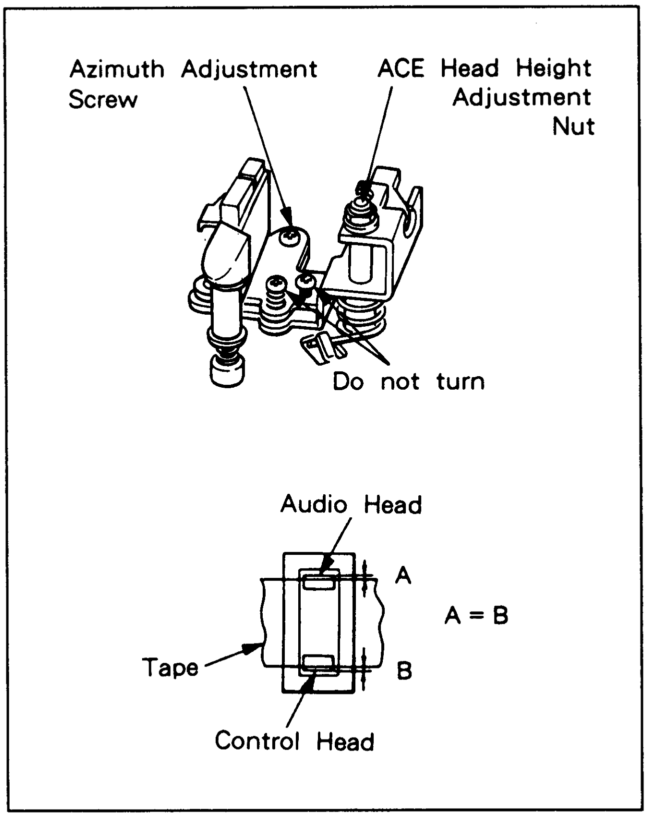

Azimuth Adjustment Screw
ACE Head Height Adjustment Nut
Do not turn
Audio Head
A
A = B
Tape
B
Control Head

Fig. 5-4-3. (2) Pre-set for Compl Head Bracket

5-4-3. TAPE PATH CHECK OF ENTRANCE SIDE FIXED GUIDE (S) (See Fig. 5-4-4.)

The fixed guide (S) of the entrance side does not require adjustment in this mechanism.
Confirm that the lower edge portion of the tape is running along the lower flange of the entrance side fixed guide (S).
The tape should not be curled by the entrance side fixed guide (S) upper and lower flanges.

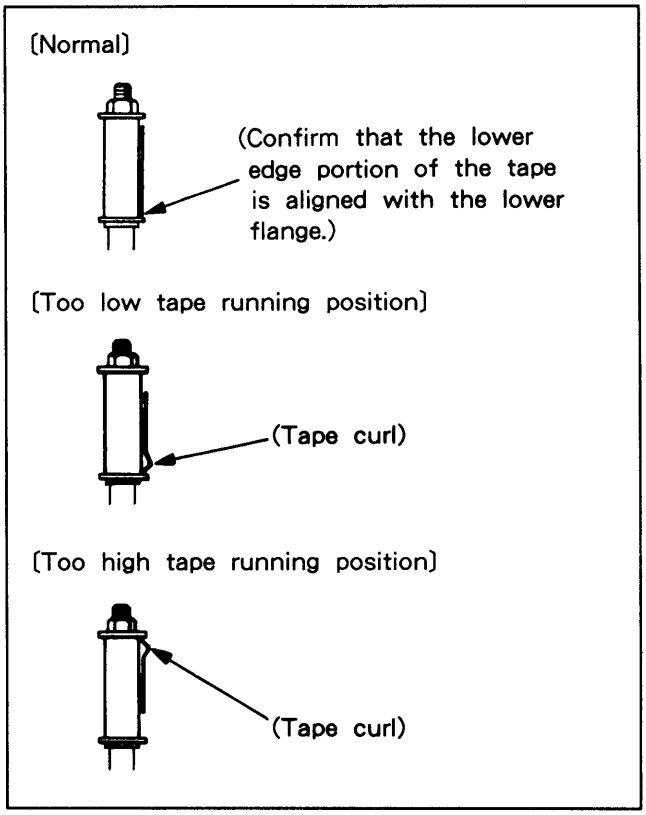

[Normal]
(Confirm that the lower edge portion of the tape is aligned with the lower flange.)
[Too low tape running position]
(Tape curl)
[Too high tape running position]
(Tape curl)

Fig. 5-4-4. Fixed Guide (S)

5-4-4. GUIDE ROLLER ADJUSTMENT (See Fig. 5-4-5.)

1) Play back the alignment tape (VHJ-0009), press the tracking control key and adjust the envelope waveform to the maximum level.
2) Loosen the supply side and take-up side guide rollers by rotating them counterclockwise, then rotate them clockwise alternately until a flat video output waveform is obtained.
3) Confirm that the envelope waveform is not deformed. Check visually that no curling occurs at the guide roller upper and lower flanges.
4) Press the tracking control key and set the envelope waveform level to approx. 50% of the maximum. In this condition, confirm whether the envelope waveform is flat. It will, show valleys or peaks at the first half (supply side) or second half (take-up side) if the tape running position is too high or too low.
In case there is unevenness in the first half (supply side), adjust the entrance side guide roller. If the second half (take-up side) shows trouble, adjust finely the take-up side guide roller.

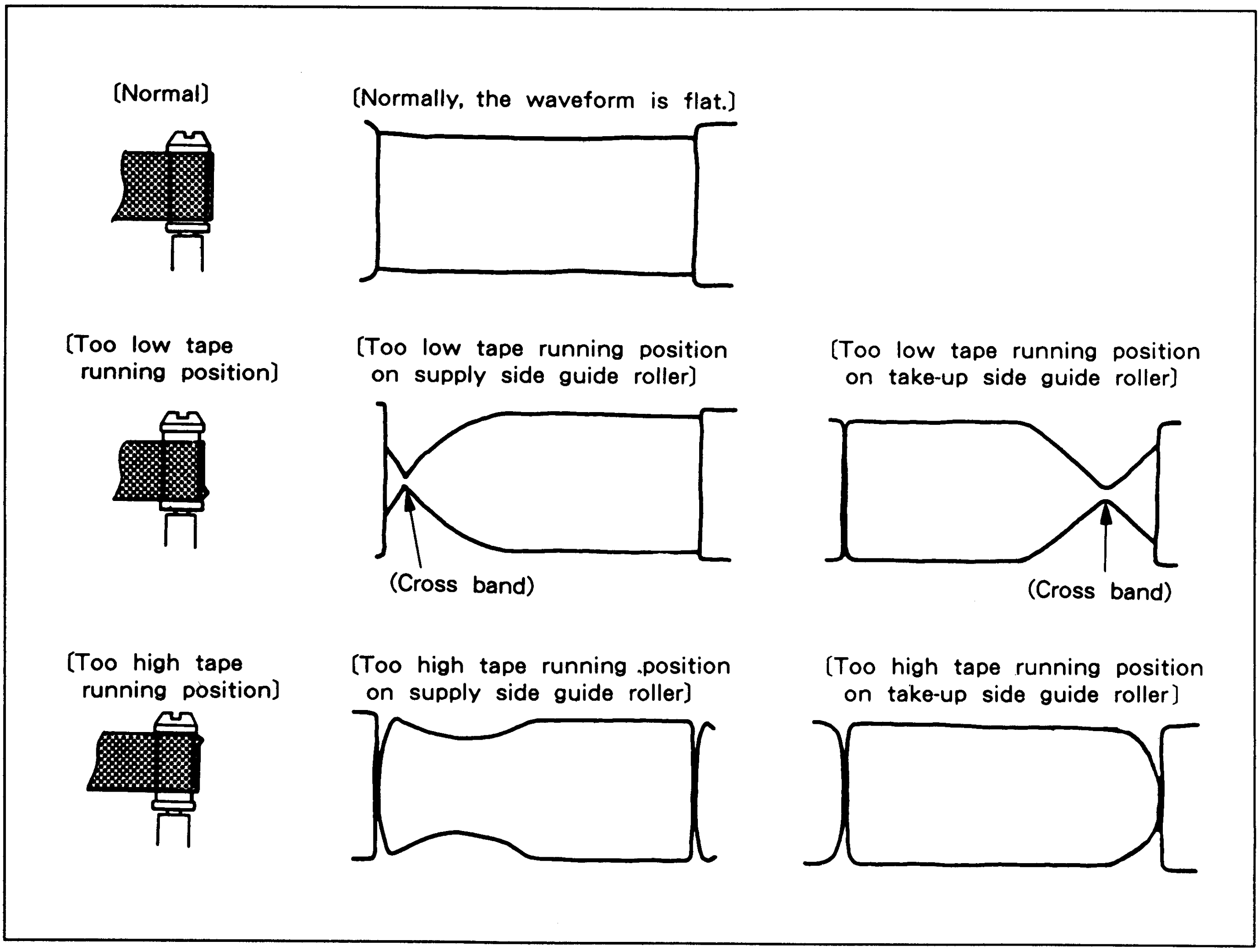

(Normal)
(Normally, the waveform is flat.)
(Too low tape running position)
(Too low tape running position on supply side guide roller)
(Too low tape running position on take-up side guide roller)
(Cross band)
(Cross band)
(Too high tape running position)
(Too high tape running .position on supply side guide roller)
(Too high tape running position on take-up side guide roller)

Fig. 5-4-5. Guide Roller Adjustment

5-4-5. TAPE PATH CHECK OF EXIT SIDE FIXED GUID (T) (See Fig. 5-4-6.)

The fixed guide (T) of the exit side does not require adjustment in this mechanism.

Confirm that the lower edge portion of the tape is running close to the lower flange of the exit side fixed guide (T).

The tape should not be curled by the exit side fixed guide (T) upper and lower flanges.

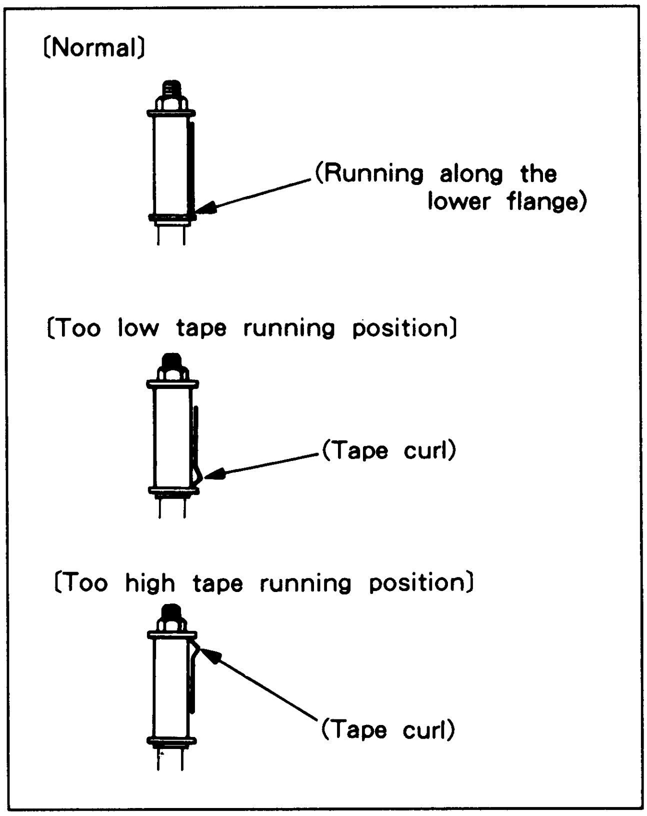

[Normal]
(Running along the lower flange)
[Too low tape running position]
(Tape curl)
[Too high tape running position]
(Tape curl)

Fig. 5-4-6. Fixed Guide (T)

5-4-6. COMPL HEAD BRACKET(ACE HEAD) ADJUSTMENT

(1) Height Adjustment and Azimuth Adjustment. (See Fig. 5-4-7.)

1) Load the alignment tape (VHJ-0009) and set the PLAY mode.
2) Monitor the audio output waveform with the oscilloscope.
3) Rotate the azimuth adjustment screw until the audio output waveform amplitude is maximum.
4) After loosening the ACE head height adjustment special nut, rotate it slowly clockwise until amplitude of the audio output waveform is maximum, then adjust it finely clockwise to the point just before the said waveform amplitude begins to decrease.
5) Rotate the azimuth adjustment screw until amplitude of the audio output waveform is maximum.
6) Confirm that the audio output waveform amplitude does not fluctuate.

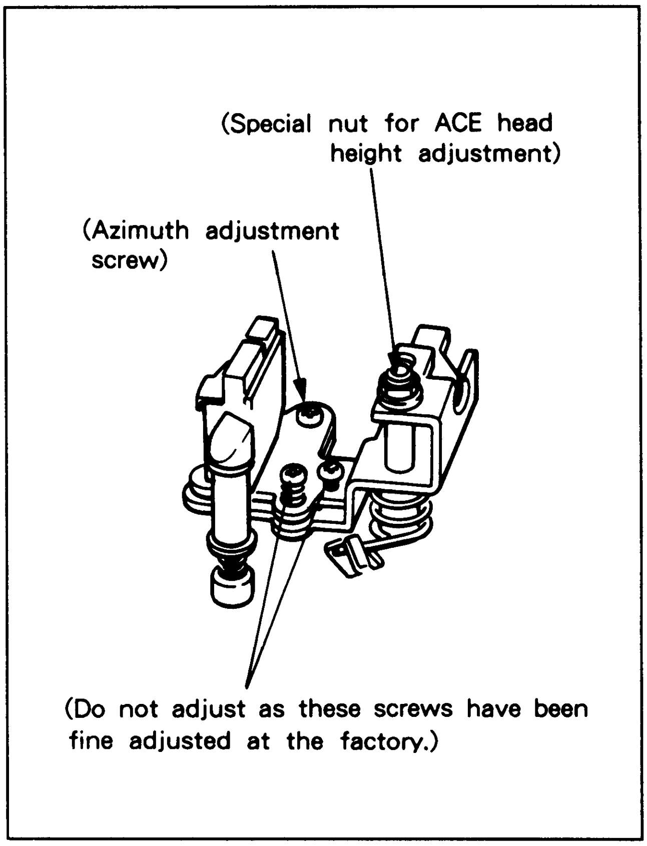

(Special nut for ACE head height adjustment)
(Azimuth adjustment screw)
(Do not adjust as these screws have been fine adjusted at the factory.)

Fig. 5-4-7. Compl Head Bracket

(2) Tracking (X Value) Adjustment (See Fig. 5-4-8.)

1) Load the alignment tape (VHJ-0009) and set the PLAY mode.
2) Set tracking to the center position with the tracking control key (See Note below).
3) Rotate the stopper bracket fixing screw 180° counterclockwise.
4) Monitor the video head output envelope waveform with the oscilloscope.
5) Adjust the stopper bracket position so that amplitude of the envelope waveform becomes maximum at the tracking center and the envelope waveform amplitude changes by the same amount when shifting the tracking center by pressing the plus (+) and minus (−) tracking control keys.
6) Tighten the fixing screw.
7) (Model for LP mode tape speed capability) Playback the alignment tape (VHJ-0052) and set the tracking to the center using a tracking control key.
   Then confirm that the playback picture on screen is normal. If not, Make readjustment by referring to items 1) through 7). To readjust, playback VHJ-0009 and finely adjust the position of the stopper bracket within the range in which the amplitude of the envelope waveform can be held to a maximum.
8) Perform servo circuit PB PHASE (Switching position) adjustment.

Note: For models equipped with auto tracking, always set to the manual tracking mode before adjustment. To confirm the tracking center position, press the tracking keys (+, −) and observe the front panel clock display.
It will read "T − : −"at the tracking center, "T− :, T− − :"when keeping the minus (−) key pressed, and "T : −, T : − −"when keeping the plus (+) key pressed. The time indication will be restored 2 to 3 seconds after the tracking keys are released.

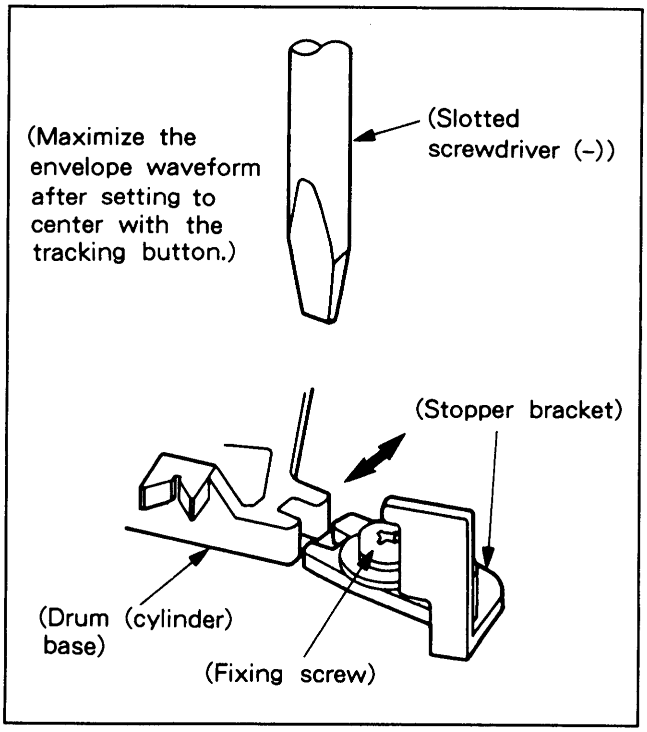

(Maximize the envelope waveform after setting to center with the tracking button.)
(Slotted screwdriver (-))
(Stopper bracket)
(Drum (cylinder) base)
(Fixing screw)

Fig. 5-4-8.

5-4-7. CHECKING AFTER ADJUSTMENT

Tape running may show a slight change depending upon the type of the cassette tape (thick or thin tape), the start, middle, or end of cassette tape winding, etc. After performing the tape path adjustment with use of an alignment tape, be sure to check the following points. Incidentally, the alignment tape to be used should be E-180 or E-240 cassette should be a good one without any damage to it.

(1) Try to play back the alignment tape (VHJ-0009) and confirm that the envelope waveform rise immediately and that there is no fluctuation in the envelope waveform and the audio output waveform.

(2) Load a cassette tape E-180 and start recording operation in the standard mode. 1 kHz should be fed to the audio input terminal when recording. After recording, the following points should be checked.

1. When the recorded portion is played back, the envelope waveform rise immediately, and no fluctuation in the envelope waveform is observed. Also, no speed drop occurs during the first half period or the last half period. Further, check to be sure that no fluctuation occurs in the audio waveform. Also confirm that neither the tape curling or derailing is caused on the upper or lower flange and the on the read side of the drum.
2. Confirm that no tape curling or derailing occurs in the upper or lower flange of each tape guide and the read side of the drum during each mode of operation, namely, FF, REW, F. SEARCH, and R. SEARCH.
3. Confirm that the envelope waveform rise immediately after changing the mode directly to the PLAY from each mode of FF, REW, F. SEARCH, R. SEARCH, or POWER OFF (INITIAL) and that no tape curling or derailing occurs in the upper or lower flange of the each tape guide and on the read side of the drum.

(3) Load a E-240 cassette tape and perform recording operation in the SP mode. 1 kHz should be fed to the audio input terminal when recording. Now, confirm that the envelope waveform rise immediately upon starting the playback of the recorded portion, and that neither fluctuation in the envelope waveform nor a speed drop occurs during the first half period or the last half period. Also confirm that no tape curling or derailing is caused in the upper or lower flange of each tape guide and on the drum lead surface.

(4) Perform recording for 60 seconds in the SP mode at the start of E-240 cassette winding. Play back the recorded portion and repeat the F.SEARCH ↔ R.SEARCH ten times, following which confirm that no damage is done to the tape edge. If any damage is found on the tape edge, a proper step must be taken as below depending upon the symptom obserbed.

1. When a sawtooth shaped damage is caused on underside of the tape edge by the REV guide
   1) Check to see if damage is done to the tape by the REV guide.
   2) Loosen the tilt adjustment screw of the ACE head bracket by turning it 135° counter-clockwise.
   3) Make readjustment of the ACE head bracket (azimuth, height and adjustment of X value) by referring to item 5-4-6.
   4) Confirm that no fluctuation in the audio level is caused by loosening the tilt adjustment screw in steps 1) and 2) above. Move the screw a little back if any fluctuation is found (but never move it back to the original position). After adjusting the tilt adjustment screw is readjusted, perform step 4) once again.
   5) Confirm again that the E-240 cassette tape does not sustain any damage.
   6) Perform the recording and playback on the E-180 and E-240 cassette tape and confirm that no fluctuation occurs in the envelope waveform and the audio waveform.

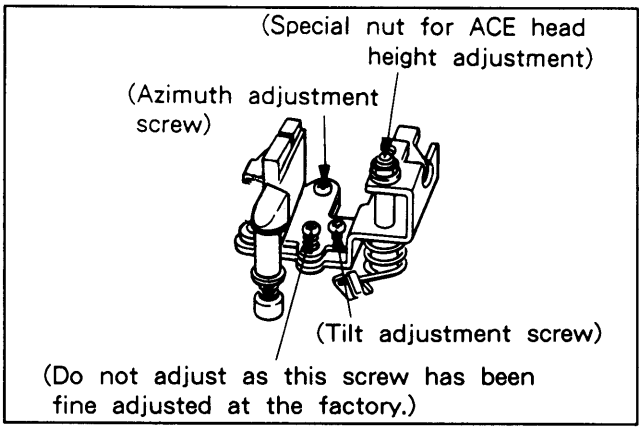

(Special nut for ACE head height adjustment)
(Azimuth adjustment screw)
(Tilt adjustment screw)
(Do not adjust as this screw has been fine adjusted at the factory.)

Fig. 5-4-9. Compl Head Bracket

2. If damage in the form of a sawtooth or a streak is found on the tape edge
   1) Check if a large amount of magnetic particles is adhered to the exit-side guide roller. If magnetic particles cannot be removed in spite of repeated cleaning, the guide roller must be replaced.
   2) Confirm if the tape is held too tightly by the exit-side guide roller, or if the last half of the envelope waveform is flat. If the type is found held too tightly, readjustment should be made by referring to 5-4-4.
   3) Recheck if the damage is still caused on the E-240 tape.
      If similar damage is still found on the tape, the exit-side guide roller should be loosened about 20° counterclockwise.
   4) Check once again that no fluctuation is caused in the envelope waveform or the audio waveform by loosening the exit-side guide roller. To do this, record and play back the E-240 cassette tape.

(5) Perform recording for 60 seconds in the SP mode at the near end of the E-240 cassette tape. Play back the recorded portion and repeat the F. SEARCH ↔ R. SEARCH ten times, following which a check should be made to see if damage is still done to the tape edge.
If a damage in the form of a sawtooth or a streak is still occurred on the tape edge by the upper lounge of entrance side guide roller, proceed with the step given below.

1. Check if a large amount of magnetic particles is adhered to the entrance-side guide roller. If the magnetic particles cannot be removed in spite of repeated cleaning, the guide roller must be replaced with new one.
2. Confirm if the tape is held too tightly by the entrance-side guide roller, or if the first half of the envelope waveform is flat. If the tape is found held too tightly, readjustment should be made by referring to 5-4-4.
3. Recheck if the damage is still caused on the E-240 tape.
   If the damage is still found on the tape, the entrance-side guide roller should be loosened about 20° counterclockwise.
4. Check once again that no fluctuation is caused in the envelope waveform or the audio waveform by loosening the entrance-side guide roller. To do this, record and play back the E-240 cassette tape.

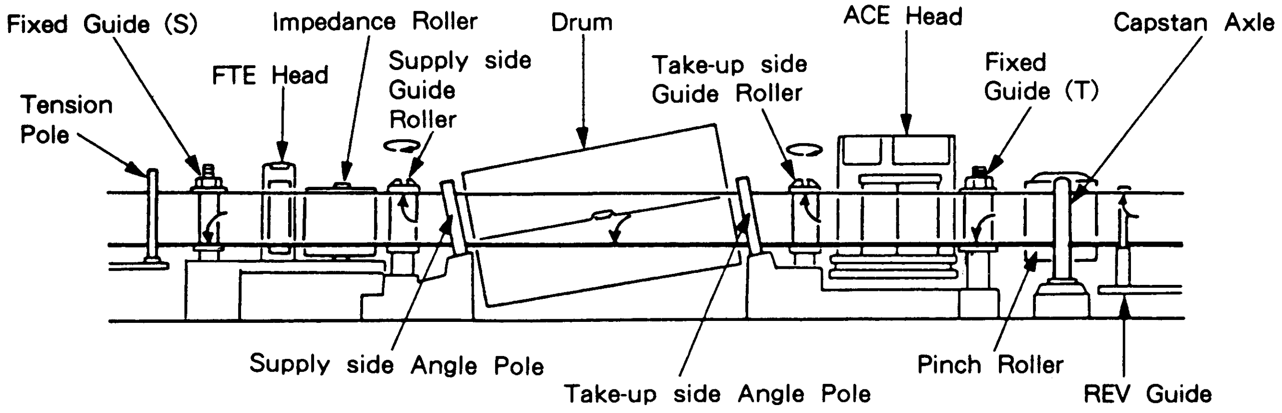


Fig. 5-4-10

6. Electrical Adjustment

6-1. PREPARATION

6-1-1. EQUIPMENT

- Colour TV monitor
- PAL Colour-bar generator (with RF and LINE OUTPUT)
- PAL TV test signal generator (Multi-burst signal with colour burst)
- Audio signal generator
- Oscilloscope (dual trace; frequency response: 10MHz or more; probe: 10:1)
- Frequency counter (countable to 10MHz or higher)
- Digital voltmeter
- AC voltmeter
- In/output probes
- Alignment cassette (VHJ-0008) PAL Colour bar 1KHz
- Alignment cassette (VHJ-0009) Monoscope 6KHz
- Alignment cassette (VHJ-0051) Check for D.O.C.
- Alignment cassette (VHJ-0023) PAL Monoscope 6KHz, PAL Colour-bar 1KHz, SECAM Colour-bar 1KHz, PAL RF Sweep MESECAM Colour-bar 1KHz, NTSC Colour-bar 1KHz.
- Alignment cassette (VHJ-0080) PAL colour bar HiFi BPF
- Alignment cassetee (VHJ-0020) AF level colour bar 1KHz
- Relay jig (VHJ-0067) 12-wire cable for Pre-amp unit
  Connect the Flat cable end from the Drum assembly to the Pre-amp unit using the Relay jig to provide simple repairing and adjustment of the Pre-amp unit, as shown in Fig. 6-1-1. Further, when adjusting the Pre-amp unit, be sure to make contact an end of Shield case with Bracket of the Pre-amp unit to maintain the shield effect.
- Relay jig (VHJ-0088) for AD-2 board
  Connect the Flat cable end to CN251 of the CP-1 board and other end to CN271 of the AD-2 board using the Relay jig (Shown in Fig. 6-1-2) to provide simple repairing and adjustment of the AD-2 board.

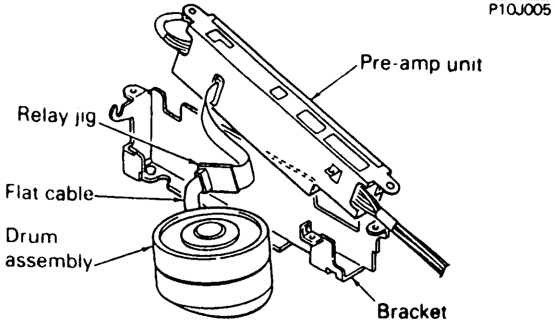


Fig. 6-1-1

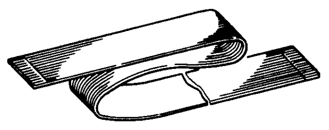


Fig. 6-1-2

6-1-2. SET-UP

Because the RF input signal is used for circuit adjustments, connect the colour-bar generator to the ANT IN terminal of the VCR. The RF input signal is processed by the tuner and IF circuit. It is important that the video output signal of the IF circuit satisfies the items shown in Fig. 6-1-3. Connect the oscilloscope to the VIDEO OUTPUT terminal of the video circuit and terminate with a 75Ω load, and then check the video output signal.

- The amplitude of the sync signal should be approximately 0.3 Vp-p.
- The amplitude of the video signal should be approximately 0.7 Vp-p.
- While observing the oscilloscope or TV screen, make fine-tuning adjustments so that the colour burst amplitude is approximately 0.3 Vp-p.
- Check to be sure that there is no spike noise in the sync part of the horizontal sync signal.

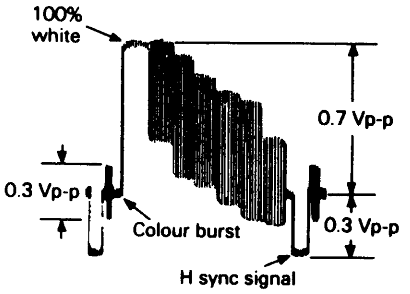
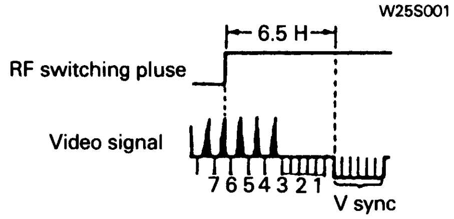
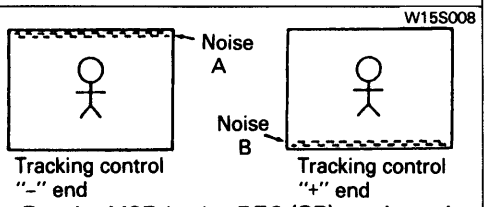
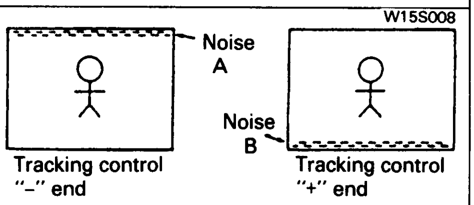


Fig. 6-1-3

6-2. SERVO CIRCUIT ADJUSTMENT ..... CP-1 board and VP-1 Pre-amp unit

NOTE (1) : These adjustments should be carried out upon completion of the transport adjustments.
(2) : If the tape transport adjustments are carried out after these adjustments, follow the procedures again in SWITCHING POSITIONS.

No.	Item	Input	Mode	Point	Location	Remark
1	SWITCHING POSITION	Alignment cassette (VHJ-0009 or VHJ-0023)	PLAY	VIDEO OUTPUT TP101 RF SW pulse TP351 (CP-1 board)	VR351	 W25S001 6.5 H RF switching pluse Video signal 7 6 5 4 3 2 1 V sync 1. Turn VR351 fully clockwise (seeing from the foil side) in the STOP mode. 2. Set the tracking control position to the center. (Tracking center position display in the indicator panel "T —:— ") 3. Play back the test tape and adjust VR351 so that the phase of the leading edge of the vertical sync signal is delayed 6.5 ± 0.5 H from the rise of the RF switching pulse waveform. 4. If the adjustment value does not changed by adjustment, repeat steps 1 through 3.
2	STILL V-LOCK for SP mode	Colour bar from Colour bar generator	REC (SP) ↓ PLAY (SP) ↓ STILL (SP)	TV screen	V-Lcok/ Tracking/Fine control (+) (–) buttons (Front panel)	1. Put the VCR in the REC (SP) mode and record at the middle of the cassette tape. 2. Playback the recorded part, and put the VCR in the STILL (SP) mode. 3. Press the (+) or (–) v-lock control buttons until V jitter (very fine movement of the vertical sync) is minimized.
3	SLOW TRACKING for SP mode	Colour bar from Colour bar generator	REC (SP) ↓ PLAY (SP) ↓ SLOW (SP)	TV screen	VR353	 W15S008 Noise A Noise B Tracking control "–" end Tracking control "+" end 1. Put the VCR in the REC (SP) mode and record at the middle of the cassette tape. 2. Playback the recorded part, and VCR in the SLOW (SP) mode by remote control unit. 3. Press the tracking control (+) (–) buttons simultaneously to the center position. (on the display "T —:— ") 4. Turn VR353, and move the noise out of the TV screen, while watching to the screen. 5. The noise position at which noise begins to appear at the upper edge of the TV screen is A, when the tracking control is turned to the "–" end. 6. The noise position at which noise begins to appear at the lower edge of the TV screen is B, when the tracking control is turned to the "+" end. 7. Readjust VR353 so that the same level of noise A and noise B can be obtained.

No.	Item	Input	Mode	Point	Location	Remark
4	STILL V-LOCK for LP mode	Colour bar from Colour bar generator	REC (LP) ↓ PLAY (LP) ↓ STILL (LP)	TV screen	V-Lcok/ Tracking/Fine control (+) (–) buttons (Front panel)	1. Put the VCR in the REC (LP) mode and record at the middle of the cassette tape. 2. Playback the recorded part, and put the VCR in the STILL (LP) mode. 3. Press the (+) or (–) v-lock control buttons until V jitter (very fine movement of the vertical sync) is minimized.
5	SLOW TRACKING for LP mode	Colour bar from Colour bar generator	REC (LP) ↓ PLAY (LP) ↓ SLOW (LP)	TV screen	VR354	 W15S008 Noise A Noise B Tracking control "–" end Tracking control "+" end 1. Put the VCR in the REC (LP) mode and record at the middle of the cassette tape. 2. Playback the recorded part, and VCR in the SLOW (LP) mode by remote control unit. 3. Press the tracking control (+) (–) buttons simultaneously to the center position. (on the display "T —:— ") 4. Turn VR354, and move the noise out of the TV screen, while watching to the screen. 5. The noise position at which noise begins to appear at the upper edge of the TV screen is A, when the tracking control is turned to the "–" end. 6. The noise position at which noise begins to appear at the lower edge of the TV screen is B, when the tracking control is turned to the "+" end. 7. Readjust VR354 so that the same level of noise A and noise B can be obtained.

P16S035

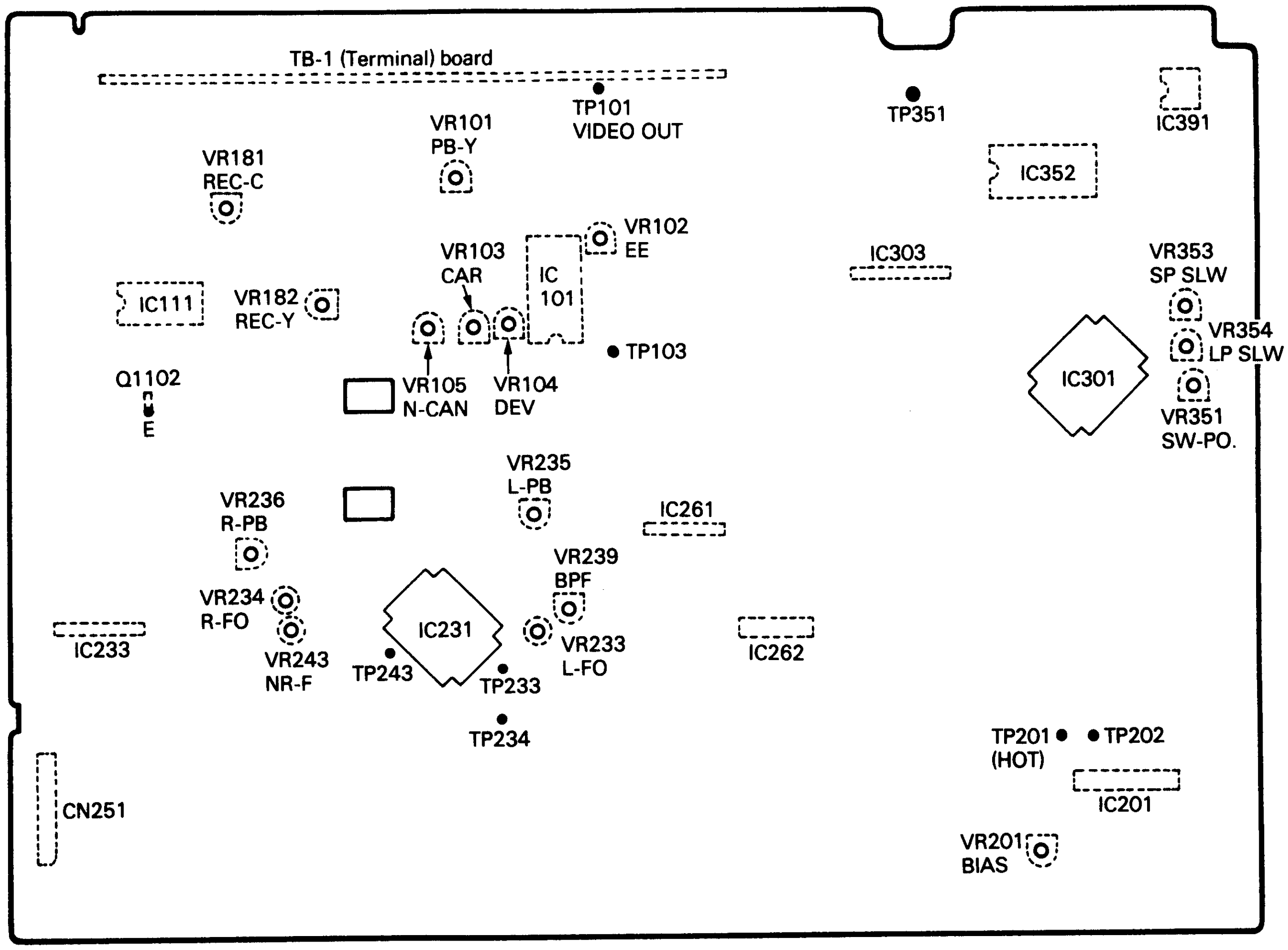
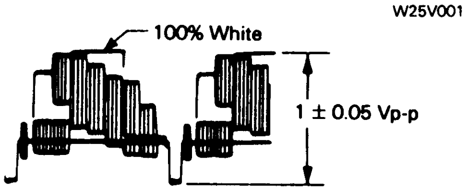
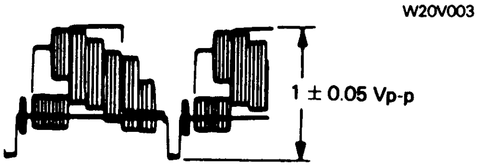
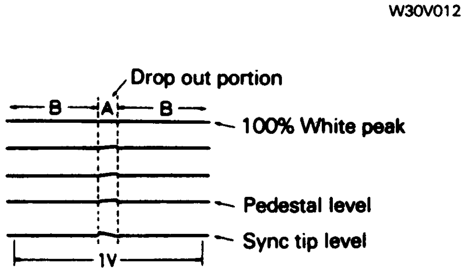
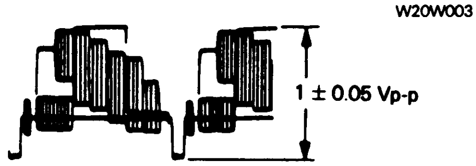
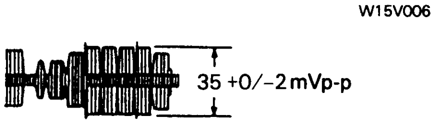
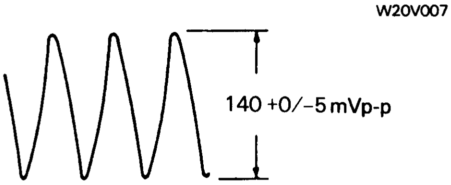

TB-1 (Terminal) board
TP101
VIDEO OUT
TP351
IC391
VR101
PB-Y
VR181
REC-C
IC352
VR102
EE
VR103
CAR
IC
101
IC303
VR353
SP SLW
IC111
VR182
REC-Y
VR354
LP SLW
TP103
IC301
Q1102
E
VR105
N-CAN
VR104
DEV
VR351
SW-PO.
VR235
L-PB
VR236
R-PB
IC261
VR239
BPF
VR234
R-FO
IC231
VR233
L-FO
IC233
VR243
NR-F
TP243
TP233
IC262
TP234
TP201
(HOT)
TP202
IC201
CN251
VR201
BIAS

Fig. 6-2-1 CP-1 board (Foil side view)

6-3. VIDEO CIRCUIT ADJUSTMENT ... CP-1 board and Video pre-amp unit

NOTE (1) : Use the Relay jig mentiond in the 6-1. PREPARATION to provide easy adjustment of the Pre-amp unit.
(2) : Before these adjustments place the unit in the SP mode.
(3) : When adjustment No. 1, No. 2 and No. 5 below, terminate VIDEO OUTPUT TP101 at 75 ohms.
(4) : 'No-signal REC mode' is not to supply any signal to VIDEO INPUT terminal.

No.	Item	Input	Mode	Point	Location	Remark
1	E-E LEVEL	Colour bar (100% white level) from Colour bar generator	E-E	VIDEO OUTPUT TP101 (CP-1 board)	VR102	 1. Adjust VR102 so that the level is 1.00 ± 0.05 Vp-p.
2	PB-Y LEVEL	Alignment cassette (VHJ-0008 or VHJ-0023)	PLAY	VIDEO OUTPUT TP101 (CP-1 board)	VR101	 1. Adjust VR101 so that the level is 1.00 ± 0.05 Vp-p.
3	N-CAN LEVEL	Alignment cassette (VHJ-0051)	PLAY	VIDEO OUTPUT TP101 (CP-1 board)	VR105	 W30V012 Drop out portion B A B 100% White peak Pedestal level Sync tip level 1V 1. Set the horizontal scale (TIME/DIV) of the oscilloscope to 1 msec./div.. 2. Adjust VR105 so that the drop out portion "A" of white peak (100%) and other portion "B" are same level.
4	CARRIER SET	No-signal	REC	TP103 (CP-1 board)	VR103	1. Set the channel selector buttons to the AV position and put the VCR in the no-signal REC mode. 2. Adjust VR103 so that the frequency is 3.75 +0/-0.05 MHz.
5	DEVIATION	Colour bar (100% white level) from Colour bar generator	REC (Adjustment) ↓ PLAY (Check)	VIDEO OUTPUT TP101 (CP-1 board)	VR104	 1. Insert the blank tape to the VCR and record colour bar signal. 2. Playback the recorded part, and check that the level is 1.00 ± 0.05 Vp-p. 3. Repeat adjust VR104 before the record, and the playback it, if not satisfactory.

No.	Item	Input	Mode	Point	Location	Remark
6	C REC CURRENT	Colour bar from Colour bar generator	REC	TP181 (HOT) shield case (GND) (Video pre-amp unit)	VR181 (CP-1 board)	 W15V006 35 +0/−2 mVp-p 1. Rotate VR182 so that the luminance level is minimize. 2. Adjust VR181 so that the level is 35 +0/−2 mVp-p.
7	Y REC CURRENT	No-signal	REC	TP181 (HOT) shield case (GND) (Video pre-amp unit)	VR182 (CP-1 board)	 W20V007 140 +0/−5 mVp-p 1. Set the channel selector buttons to AV position and put the VCR in the no-signal REC mode. 2. Adjust VR182 so that the level is 140 +0/−5 mVp-p. 3. Follows are the applicable models and their corresponding mark.

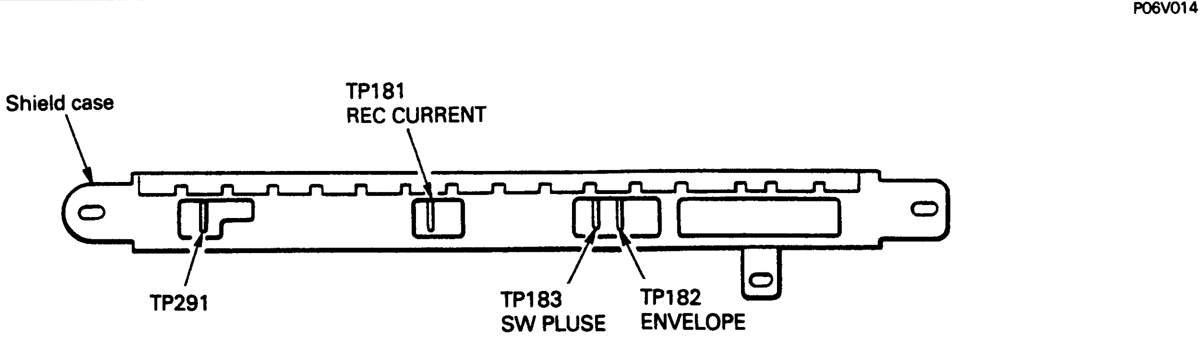

P06V014
Shield case
TP181
REC CURRENT
TP291
TP183
SW PLUSE
TP182
ENVELOPE

Fig. 6-3-1 Video pre-amp unit

6-4. AUDIO CIRCUIT ADJUSTMENT

NOTE: When repairing and adjusting the CP-1 board and AD-2 board, use the optionally supplied Relay jig (VHJ-0088) since the flexible PCB for connecting to the AD-2 board is short. Connect the Flat cable end to CN271 on the AD-2 board and other end to CN251 on the CP-1 board.

SETTING BEFORE ADJUSTMENT

- The audio input terminal of the audio signal generator should be terminated at 600 ohms.
- The audio output terminal of the VCR should be terminated at 47 killo ohms (L ch and R ch).
- 0/AV button on the remote control ....[AV] position.
- AUDIO output button on the remote control ....[L] and [R] position.
- SP/LP select button on the remote control ....[SP] position.
- REC LEVEL control ....Center (click stop) position.
- REC BALANCE control .... Center (click stop) position.

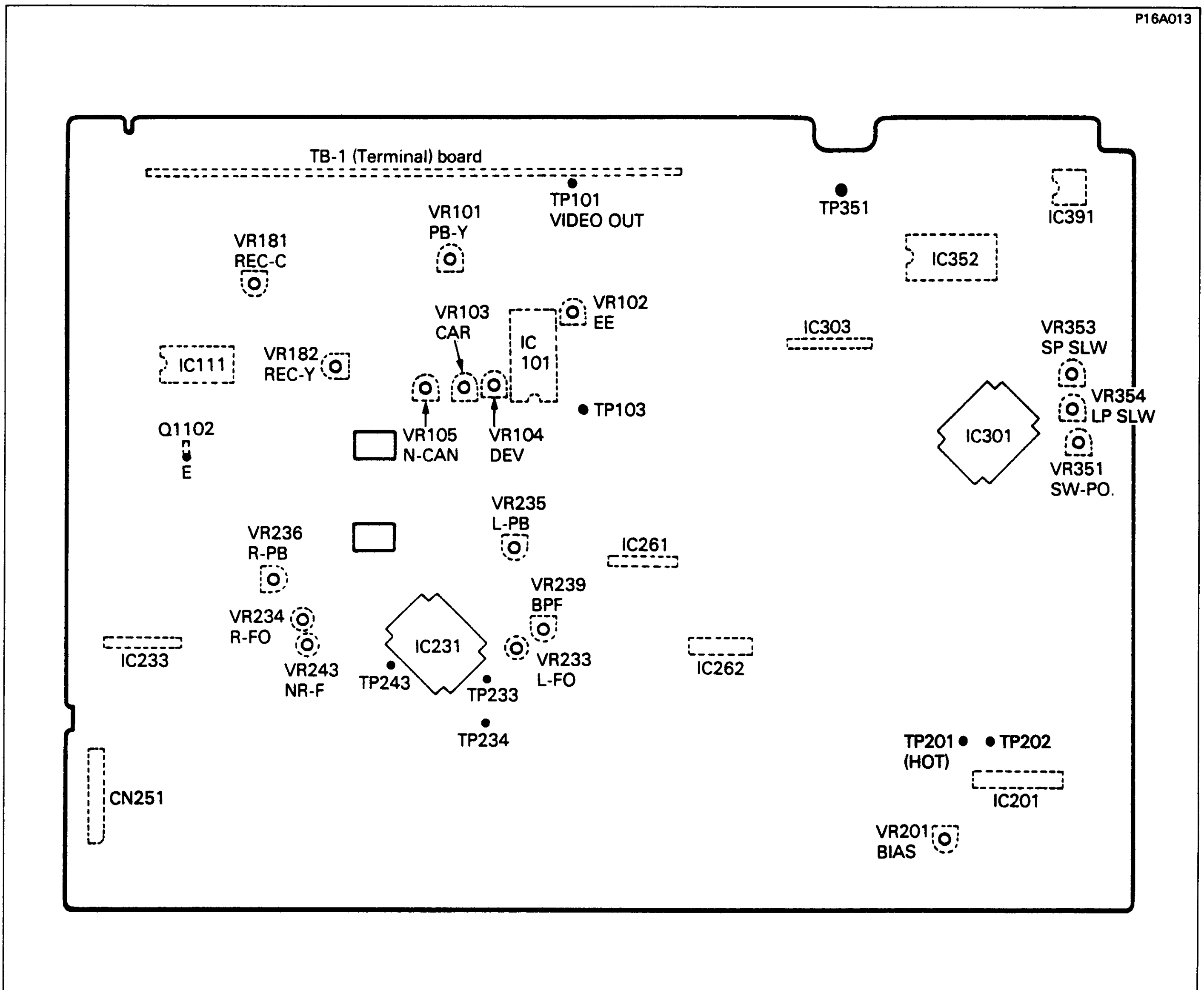
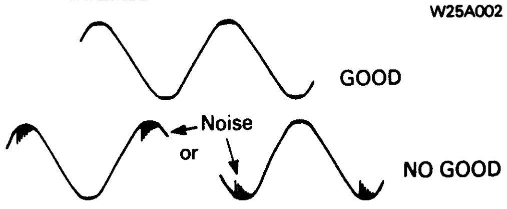

P16A013
TB-1 (Terminal) board
TP101
VIDEO OUT
TP351
IC391
VR101
PB-Y
VR181
REC-C
IC352
VR103
CAR
VR102
EE
IC
101
IC303
VR353
SP SLW
IC111
VR182
REC-Y
TP103
VR354
LP SLW
Q1102
E
VR105
N-CAN
VR104
DEV
IC301
VR351
SW-PO.
VR235
L-PB
VR236
R-PB
IC261
VR239
BPF
VR234
R-FO
IC233
VR243
NR-F
TP243
IC231
TP233
VR233
L-FO
IC262
TP234
TP201
(HOT)
TP202
CN251
IC201
VR201
BIAS

Fig. 6-4-1 CP-1 board (Foil side view)

Hi-Fi AUDIO CIRCUIT .... CP-1 board

NOTE (1): The Hi-Fi AUDIO section adjustment has separate adjustment items for the L ch and R ch.
The R ch adjustments are included in parentheses.
(2): 'No-signal record mode' is not to supply any signal to the AUDIO INPUT terminal.

No.	Item	Input	Mode	Point	Location	Remark
1	A-FM CARRIER FREQUENCY	No-signal	REC	TP233 (L ch) TP234 (R ch)	VR233 (L ch) VR234 (R ch)	1. Connect a frequency counter to TP233 (TP234) and ground. 2. Adjust VR233 (VR234) so that the carrier frequency is 1.4 MHz (1.8 MHz) +1/−9 KHz.
2	A-FM BPF	Alignment cassette (VHJ-0080)	PLAY	AUDIO OUTPUT terminals (L ch, R ch)	VR239 L ch (R ch)	 1. Connect a oscilloscope to AUDIO OUTPUT L ch (R ch) terminal. 2. Playback the alignment cassette and observe the waveform on the audio output. 3. Adjust VR239 until the noise component of both channel is minimum level.
3	A-FM NR FILTER	Audio signal (5 KHz, −17 dBm) from Audio signal generator	E-E	TP243	VR243	1. Adjust VR243 so that the output level is minimum.
4	A-FM PB LEVEL	Alignment cassette (VHJ-0020)	PLAY	AUDIO OUTPUT terminals (L ch, R ch)	VR235 (L ch) VR236 (R ch)	1. Adjust VR235 (VR236) so that the playback level is −7 ± 0.5dBm.

NORMAL AUDIO CIRCUIT ..... CP-1 board

NOTE (1): 'No-signal record mode' is not to supply any signal to the AUDIO INPUT terminal.
(2): Press the AUDIO output select button to the Mono (No indication) position.

No.	Item'	Input	Mode	Point	Location	Remark
1	BIAS LEVEL	No-signal	REC	TP201 (HOT) TP202	VR201	1. Set the channel selector buttons to the AV position and put the VCR in the no-signal REC mode. 2. Adjust VR201 so that the level is 24 mVrms. 3. Confirm that the bias frequency is 70 ± 5 KHz.

6-5. LEVEL METER CIRCUIT ADJUSTMENT ... CP-1 and AD-2 board

NOTE: When repairing and adjusting the CP-1 board and AD-2 board, use the optionally supplied Relay jig (VHJ-0088) since the flexible PCB for connecting to the AD-2 board is short. Connect the Flat cable end to CN271 on the AD-2 board and other end to CN251 on the CP-1 board.

No.	Item	Input	Mode	Point	Location	Remark
1	AUDIO LEVEL METER	Audio signal (1 KHz, -7 dBm) from Audio signal generator	E-E	AUDIO OUTPUT terminals (L ch, R ch)	VR241 (L ch) VR242 (R ch) (AD-2 board)	1. Connect an audio signal generator to AUDIO INPUT terminals. 2. Connect the AC voltmeter to the AUDIO OUTPUT terminals. 3. Set the LEVEL METER switch to the "AUDIO LEVEL" position. 4. Press the "0" button on the remote control unit to the AV position. 5. Press the AUDIO output button on the remote control unit to the "Lch" and "Rch" position. 6. Set the AUDIO REC LEVEL control so that the audio output signal level is -7.0dBm. 7. Adjust VR241 and VR242 so that illuminates the -4dB LED. 8. Set the AUDIO REC LEVEL control so that the audio output signal level is -7.5dBm. 9. Adjust VR241 and VR242 so that confirm only the -4dB LED goes out.

P08A014

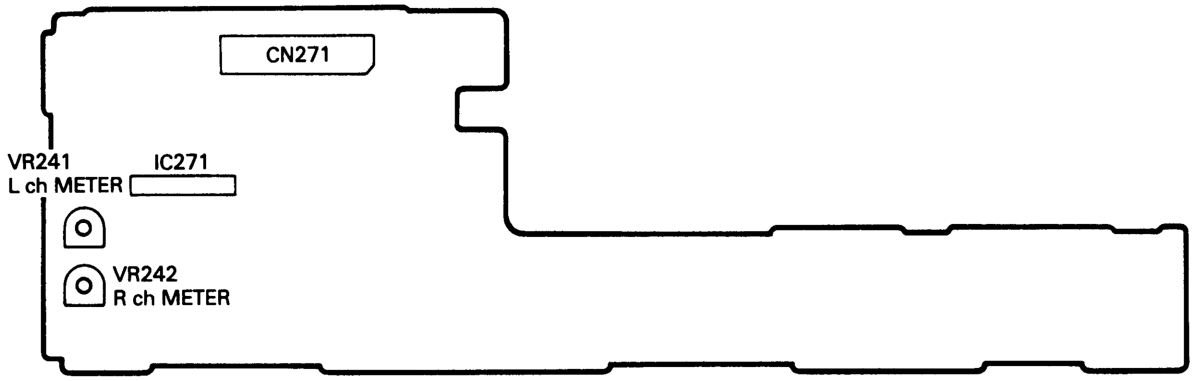


Fig. 6-5-1 AD-2 board (Parts side view)

6-6. VIDEOTEXT DECODER CIRCUIT ADJUSTMENT ... TM-6 and CP-1 board

No.	Item	Input	Mode	Point	Location	Remark
1	DECODER VXO	NONE	E-E	Emitter of Q1102 (CP-1 board) Fig. 6-2-1	CT761	1. Set the vartical scale (VOLTAGE/DIV.) of the oscilloscope to 10 mV/DIV.. 2. Connect the frequency counter to Emitter of Q1102 and ground through a pre-amp of the above oscilloscope. 3. Press the "MENU" button on the remote control unit. 4. Adjust CT761 so that the frequency is 4433619 ± 20Hz.

P08X003

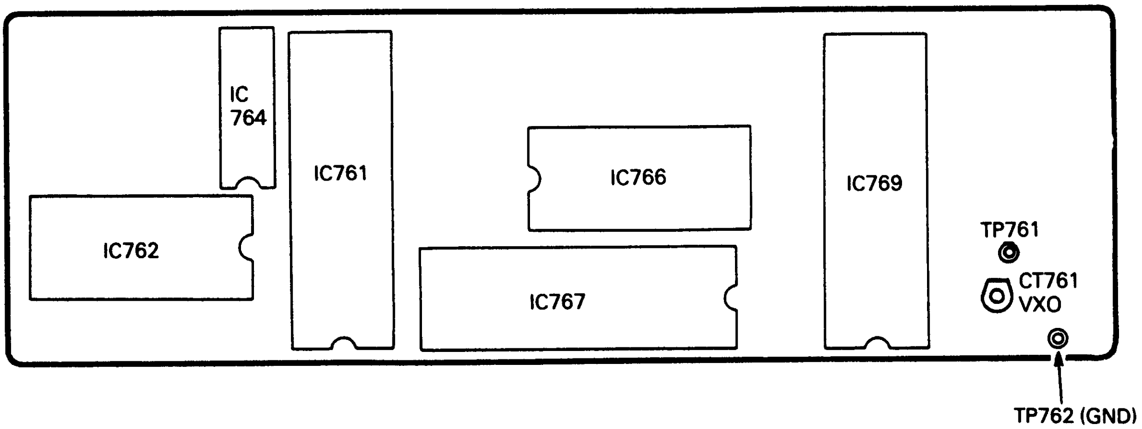

IC
764
IC761
IC766
IC769
IC762
IC767
TP761
CT761
VXO
TP762 (GND)

Fig. 6-6-1 TM-6 board (Parts side view)

6-7. TUNER IF CIRCUIT ADJUSTMENT ... VIF unit

No.	Item	Input	Mode	Point	Location	Remark
1	RF AGC	TV broadcast	E-E	TV screen	VR611	1. Turn VR611 in the direction which causes snow to appear, then in the opposite direction until the show just disappears.

P06U004

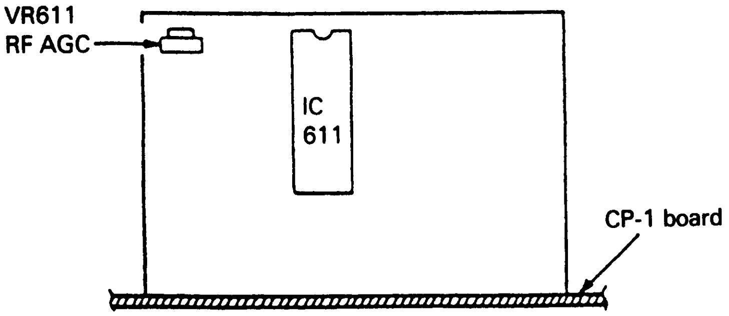

VR611
RF AGC
IC
611
CP-1 board

Fig. 6-7-1 VIF unit (Parts side view)

6-8. LOCATION FOR TAPE PATH ADJUSTMENT

NOTE: Test point TP182 and TP183 for tape path adjustment is shown in figure below.
For adjustment, refer to "5-4. TAPE PATH ADJUSTMENT".

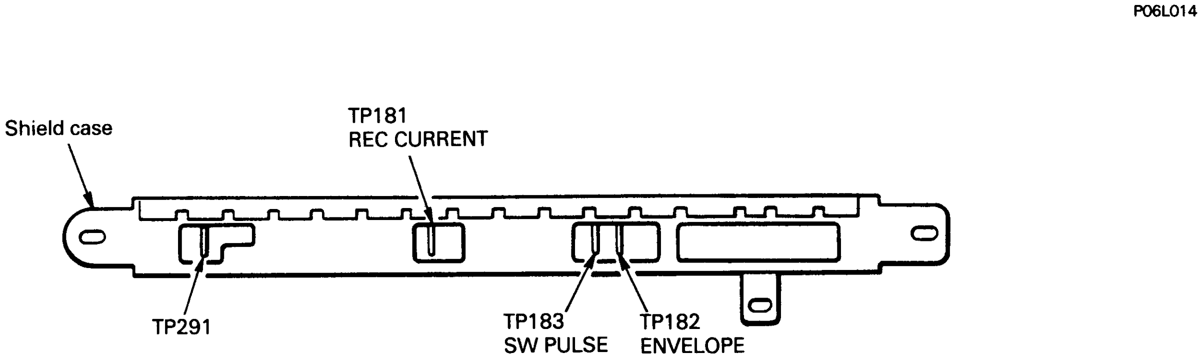

P06L014
Shield case
TP181
REC CURRENT
TP291
TP183
SW PULSE
TP182
ENVELOPE

Fig. 6-8-1 Pre-amp unit

7. Electrical Parts List

NOTE;

*Materials of Capacitors and Resistors are abbreviated as follows;

Resistors

MT-FILE	Metal Film Resistor
MT-GLAZE	Metal Glaze Resistor
OXIDE-MT	Oxide Metal Film Resistor

Capacitors

MT-POLYEST	Metallized Polyester Capacitor
MT-COMPO	Metallized Composite Capacitor
TA-SOLID	Tantalum Solid Capacitor
AL-SOLID	Aluminum Solid Capacitor
NP-ELECT	Non-Polarized Electrolytic Capacitor
OS-SOLID	Aluminum Solid Capacitors with Organic Semiconductive Electrolytic Capacitor
DL-ELECT	Double Layered Electrolytic Capacitor

*Tolerance of Capacitor(10pF over) and Resistor are noted with follow symboles.

F ············±1%　G ············±2%　J ············±5%　K ············±10%

M ············±20%　N ············±30%　Z ············+80% ~ −20%

*N.S.P. : Not available as service parts.

LOCATION	PARTS NO.	DESCRIPTION
COMPL PCB,CP-A		
COMPL.NO.	613 127 6031	
VIDEO CIRCUIT(VD-A)		
C1001	403 025 7304	CERAMIC 4.7P K 50V
C1002	403 073 2702	CERAMIC 390P J 50V
C1003	403 026 2209	CERAMIC 47P J 50V
C1004	403 179 4501	NP-ELECT 0.47U M 50V
C1005	403 150 1703	CERAMIC 91P J 50V
C1006	403 071 1509	CERAMIC 180P J 50V
C1007	403 075 4001	CERAMIC 820P J 50V
C1008	403 134 4706	NP-ELECT 2.2U M 50V
C1009	403 001 1906	CERAMIC 0.01U M 16V
C1010	403 121 3408	ELECT 2.2U M 50V
C1011	403 130 2904	ELECT 0.47U M 50V
C1012	403 075 3103	CERAMIC 82P J 50V
C1013	403 068 8801	CERAMIC 100P J 50V
C1014	403 063 2200	POLYESTER 0.068U K 50V
C1015	403 001 1906	CERAMIC 0.01U M 16V
C1016	403 001 1906	CERAMIC 0.01U M 16V
C1017	403 001 1906	CERAMIC 0.01U M 16V
C1018	403 135 4002	ELECT 47U M 6.3V
C1019	403 121 3408	ELECT 2.2U M 50V
C1020	403 107 9905	ELECT 10U M 16V
C1021	403 121 3408	ELECT 2.2U M 50V
C1023	403 001 1906	CERAMIC 0.01U M 16V
C1024	403 139 1205	ELECT 22U M 10V
C1025	403 130 2904	ELECT 0.47U M 50V
C1031	403 001 1906	CERAMIC 0.01U M 16V
C1032	403 135 5009	ELECT 47U M 10V
C1033	403 139 2707	ELECT 1U M 50V
C1034	403 026 2209	CERAMIC 47P J 50V
C1035	403 025 7304	CERAMIC 4.7P K 50V
C1036	403 026 2209	CERAMIC 47P J 50V
C1037	403 121 3002	ELECT 4.7U M 25V
C1038	403 001 1906	CERAMIC 0.01U M 16V
C1039	403 001 1906	CERAMIC 0.01U M 16V
C1040	403 073 6205	CERAMIC 470P J 50V
C1061	403 074 8703	CERAMIC 680P J 50V
C1081	403 028 3402	CERAMIC 56P J 50V
C1082	403 026 2209	CERAMIC 47P J 50V
C1083	403 072 7500	CERAMIC 330P J 50V
C1084	403 073 2702	CERAMIC 390P J 50V
C1085	403 030 6309	CERAMIC 68P J 50V
C1101	403 214 0703	CERAMIC 0.022U J 16V
C1102	403 001 1906	CERAMIC 0.01U M 16V
C1103	403 109 6308	ELECT 1U M 50V
C1104	403 001 1906	CERAMIC 0.01U M 16V
C1105	403 109 6308	ELECT 1U M 50V

LOCATION	PARTS NO.	DESCRIPTION
C1106	403 109 6308	ELECT 1U M 50V
C1107	403 003 3700	CERAMIC 0.022U Z 25V
C1108	403 214 1106	CERAMIC 0.047U J 16V
C1109	403 001 1906	CERAMIC 0.01U M 16V
C1112	403 139 2707	ELECT 1U M 50V
C1113	403 214 1106	CERAMIC 0.047U J 16V
C1114	403 025 8608	CERAMIC 43P J 50V
C1115	403 150 1703	CERAMIC 91P J 50V
C1116	403 001 1906	CERAMIC 0.01U M 16V
C1117	403 135 4002	ELECT 47U M 6.3V
C1118	403 068 8801	CERAMIC 100P J 50V
C1119	403 001 1906	CERAMIC 0.01U M 16V
C1121	403 001 1906	CERAMIC 0.01U M 16V
C1124	403 121 0100	CERAMIC 0.082U J 16V
OR	403 214 1403	CERAMIC 0.082U J 16V
C1125	403 070 3702	CERAMIC 120P J 50V
C1126	403 001 1906	CERAMIC 0.01U M 16V
C1131	403 075 3103	CERAMIC 82P J 50V
C1271	403 001 1906	CERAMIC 0.01U M 16V
C1272	403 001 1906	CERAMIC 0.01U M 16V
C1292	403 115 0901	CERAMIC 560P J 50V
C1301	403 003 3700	CERAMIC 0.022U Z 25V
C1351	403 022 7703	CERAMIC 33P J 50V
C1352	403 014 2600	CERAMIC 18P J 50V
C1601	403 139 1502	ELECT 10U M 16V
C1602	403 107 9905	ELECT 10U M 16V
C1603	403 154 3307	OS-SOLID 4.7U M 10V
C1605	403 135 4101	ELECT 470U M 6.3V
C1608	403 162 1807	ELECT 22U M 10V
C1609	403 093 9606	OS-SOLID 1U M 16V
D1001	407 007 9904	DIODE GMA01-BT
OR	407 012 4406	DIODE 1SS133-T-77
D1002	407 007 9904	DIODE GMA01-BT
OR	407 012 4406	DIODE 1SS133-T-77
D1005	407 007 9904	DIODE GMA01-BT
OR	407 012 4406	DIODE 1SS133-T-77
D1031	407 070 8408	ZENER DIODE GZS9.1Y-TB
OR	407 053 8906	ZENER DIODE MTZ9.1C-T-77
D1301	407 007 9904	DIODE GMA01-BT
OR	407 012 4406	DIODE 1SS133-T-77
D1302	407 007 9904	DIODE GMA01-BT
OR	407 012 4406	DIODE 1SS133-T-77
D1303	407 007 9904	DIODE GMA01-BT
OR	407 012 4406	DIODE 1SS133-T-77
D1304	407 007 9904	DIODE GMA01-BT
OR	407 012 4406	DIODE 1SS133-T-77
D1601	407 007 9904	DIODE GMA01-BT
OR	407 012 4406	DIODE 1SS133-T-77
D1603	407 012 4406	DIODE 1SS133-T-77

LOCATION	PARTS NO.	DESCRIPTION
D1603	407 007 9904	DIODE GMA01-BT
D1604	407 007 9904	DIODE GMA01-BT
OR	407 012 4406	DIODE 1SS133-T-77
D1611	407 007 9904	DIODE GMA01-BT
OR	407 012 4406	DIODE 1SS133-T-77
D1612	407 007 9904	DIODE GMA01-BT
OR	407 012 4406	DIODE 1SS133-T-77
D1651	407 007 9904	DIODE GMA01-BT
OR	407 012 4406	DIODE 1SS133-T-77
DL131	613 116 7001	DELAY,2H
OR	613 117 4870	DELAY,2H
IC101	409 178 3309	IC LA7340
IC102	409 171 9209	IC LC8992
IC111	409 208 7208	IC LA7332
IC161	409 003 4501	IC BA7021
OR	409 120 3401	IC LA7221
L1001	613 014 0951	COIL,INDUCTOR 68UHK
OR	613 014 4478	HF CHOKE 68UH K
L1031	613 014 0968	COIL,INDUCTOR 82UHK
OR	613 014 4485	HF CHOKE 82UH K
L1032	613 014 0739	COIL,INDUCTOR 1.0UHM
OR	613 014 4256	HF CHOKE 1.0UH K
L1061	613 014 0975	COIL,INDUCTOR 100UHK
OR	613 014 4492	HF CHOKE 100UH K
L1081	613 014 0838	COIL,INDUCTOR 6.8UHK
OR	613 014 4355	HF CHOKE 6.8UH K
L1082	613 014 0890	COIL,INDUCTOR 22UHK
OR	613 014 4416	HF CHOKE 22UH K
L1083	613 014 0951	COIL,INDUCTOR 68UHK
OR	613 014 4478	HF CHOKE 68UH K
L1084	613 014 0968	COIL,INDUCTOR 82UHK
OR	613 014 4485	HF CHOKE 82UH K
L1101	613 014 0883	COIL,INDUCTOR 18UHK
OR	613 014 4409	HF CHOKE 18UH K
L1102	613 014 0791	COIL,INDUCTOR 3.3UHK
OR	613 014 4317	HF CHOKE 3.3UH K
L1103	613 014 0876	COIL,INDUCTOR 15UHK
OR	613 014 4393	HF CHOKE 15UH K
L1104	613 014 1019	COIL,INDUCTOR 220UHK
OR	613 014 4539	HF CHOKE 220UH K
L1105	613 014 0906	COIL,INDUCTOR 27UHK
OR	613 014 4423	HF CHOKE 27UH K
Q1001	405 093 0508	TR KSA1175-Y
OR	405 004 4007	TR 2SA608-E-SPA-AC
OR	405 004 4601	TR 2SA608-F-SPA-AC
OR	405 006 1707	TR 2SA933S-TP-Q
OR	405 006 1806	TR 2SA933S-T93-R
Q1002	405 093 0607	TR KSC2785-Y
OR	405 011 8401	TR 2SC1740S-DCTP-Q
OR	405 011 8500	TR 2SC1740S-DCTP-R
OR	405 019 2005	TR 2SC536-E-SPA-AC
OR	405 019 2807	TR 2SC536-F-SPA-AC
Q1003	405 093 0607	TR KSC2785-Y
OR	405 011 8401	TR 2SC1740S-DCTP-Q
OR	405 011 8500	TR 2SC1740S-DCTP-R
OR	405 019 2005	TR 2SC536-E-SPA-AC
OR	405 019 2807	TR 2SC536-F-SPA-AC
Q1004	405 063 9708	TR DTC144EL-TL2
Q1031	405 093 0508	TR KSA1175-Y
OR	405 004 4007	TR 2SA608-E-SPA-AC
OR	405 004 4601	TR 2SA608-F-SPA-AC
OR	405 006 1707	TR 2SA933S-TP-Q
OR	405 006 1806	TR 2SA933S-T93-R
Q1032	405 057 6201	TR 2SC4038-Q-TL2
OR	405 057 6409	TR 2SC4038-R-TL2

LOCATION	PARTS NO.	DESCRIPTION
Q1051	405 093 0508	TR KSA1175-Y
OR	405 004 4007	TR 2SA608-E-SPA-AC
OR	405 004 4601	TR 2SA608-F-SPA-AC
OR	405 006 1707	TR 2SA933S-TP-Q
OR	405 006 1806	TR 2SA933S-T93-R
Q1101	405 093 0508	TR KSA1175-Y
OR	405 004 4007	TR 2SA608-E-SPA-AC
OR	405 004 4601	TR 2SA608-F-SPA-AC
OR	405 006 1707	TR 2SA933S-TP-Q
OR	405 006 1806	TR 2SA933S-T93-R
Q1102	405 057 6201	TR 2SC4038-Q-TL2
OR	405 057 6409	TR 2SC4038-R-TL2
Q1103	405 093 0607	TR KSC2785-Y
OR	405 011 8401	TR 2SC1740S-DCTP-Q
OR	405 011 8500	TR 2SC1740S-DCTP-R
OR	405 019 2005	TR 2SC536-E-SPA-AC
OR	405 019 2807	TR 2SC536-F-SPA-AC
Q1104	405 093 0607	TR KSC2785-Y
OR	405 011 8401	TR 2SC1740S-DCTP-Q
OR	405 011 8500	TR 2SC1740S-DCTP-R
OR	405 019 2005	TR 2SC536-E-SPA-AC
OR	405 019 2807	TR 2SC536-F-SPA-AC
Q1105	405 057 6201	TR 2SC4038-Q-TL2
OR	405 057 6409	TR 2SC4038-R-TL2
Q1106	405 093 0607	TR KSC2785-Y
OR	405 011 8401	TR 2SC1740S-DCTP-Q
OR	405 011 8500	TR 2SC1740S-DCTP-R
OR	405 019 2005	TR 2SC536-E-SPA-AC
OR	405 019 2807	TR 2SC536-F-SPA-AC
Q1151	405 093 0508	TR KSA1175-Y
OR	405 004 4007	TR 2SA608-E-SPA-AC
OR	405 004 4601	TR 2SA608-F-SPA-AC
OR	405 006 1707	TR 2SA933S-TP-Q
OR	405 006 1806	TR 2SA933S-T93-R
Q1301	405 064 0100	TR 2SA1561-TL2-Q
OR	405 064 0209	TR 2SA1561-TL2-R
Q1302	405 093 0607	TR KSC2785-Y
OR	405 011 8401	TR 2SC1740S-DCTP-Q
OR	405 011 8500	TR 2SC1740S-DCTP-R
OR	405 019 2005	TR 2SC536-E-SPA-AC
OR	405 019 2807	TR 2SC536-F-SPA-AC
Q1351	405 063 9104	TR DTA144EL-TL2
Q1381	405 063 9708	TR DTC144EL-TL2
Q1382	405 063 9708	TR DTC144EL-TL2
Q1391	405 063 9708	TR DTC144EL-TL2
Q1401	405 093 0607	TR KSC2785-Y
OR	405 011 8401	TR 2SC1740S-DCTP-Q
OR	405 011 8500	TR 2SC1740S-DCTP-R
OR	405 019 2005	TR 2SC536-E-SPA-AC
OR	405 019 2807	TR 2SC536-F-SPA-AC
Q1402	405 086 4506	TR KSA643C-Y
OR	405 006 6504	TR 2SA984-E-AA
OR	405 006 6702	TR 2SA984-F-AA
Q1403	405 093 0607	TR KSC2785-Y
OR	405 011 8401	TR 2SC1740S-DCTP-Q
OR	405 011 8500	TR 2SC1740S-DCTP-R
OR	405 019 2005	TR 2SC536-E-SPA-AC
OR	405 019 2807	TR 2SC536-F-SPA-AC
Q1404	405 089 0109	TR 2SA1707-T-AN
OR	405 084 7905	TR 2SB1240-TV2-R
Q1601	405 004 4601	TR 2SA608-F-SPA-AC
OR	405 006 1806	TR 2SA933S-T93-R
Q1602	405 064 0100	TR 2SA1561-TL2-Q
OR	405 064 0209	TR 2SA1561-TL2-R
Q1611	405 064 0100	TR 2SA1561-TL2-Q
OR	405 064 0209	TR 2SA1561-TL2-R
Q1612	405 063 9708	TR DTC144EL-TL2
R1001	401 022 3008	CARBON 6.8K JA 1/4W

LOCATION	PARTS NO.	DESCRIPTION
R1002	401 017 1705	CARBON 2.7K JA 1/4W
R1003	401 022 1806	CARBON 680 JA 1/4W
R1004	401 012 9201	CARBON 1M JA 1/4W
R1005	401 012 5609	CARBON 1K JA 1/4W
R1006	401 017 1705	CARBON 2.7K JA 1/4W
R1007	401 012 5609	CARBON 1K JA 1/4W
R1008	401 022 1806	CARBON 680 JA 1/4W
R1009	401 012 5609	CARBON 1K JA 1/4W
R1010	401 017 8506	CARBON 300 JA 1/4W
R1011	401 015 2605	CARBON 1.8K JA 1/4W
R1012	401 015 4609	CARBON 180K JA 1/4W
R1013	401 012 9201	CARBON 1M JA 1/4W
R1014	401 016 3700	CARBON 2.2K JA 1/4W
R1015	401 023 2703	CARBON 8.2K JA 1/4W
R1016	401 013 5202	CARBON 1.2K JA 1/4W
R1017	401 018 4804	CARBON 33K JA 1/4W
R1018	401 012 5609	CARBON 1K JA 1/4W
R1019	401 016 2505	CARBON 220 JA 1/4W
R1020	401 020 3802	CARBON 470K JA 1/4W
R1021	401 014 6000	CARBON 150K JA 1/4W
R1022	401 022 1806	CARBON 680 JA 1/4W
R1023	401 016 4707	CARBON 22K JA 1/4W
R1024	401 020 2805	CARBON 47K JA 1/4W
R1025	401 016 3700	CARBON 2.2K JA 1/4W
R1026	401 012 5609	CARBON 1K JA 1/4W
R1031	401 012 5609	CARBON 1K JA 1/4W
R1032	401 020 0702	CARBON 470 JA 1/4W
R1033	401 018 9700	CARBON 39 JA 1/4W
R1034	401 018 9700	CARBON 39 JA 1/4W
R1035	401 018 9700	CARBON 39 JA 1/4W
R1051	401 012 4404	CARBON 100 JA 1/4W
R1052	401 012 5609	CARBON 1K JA 1/4W
R1081	401 020 0702	CARBON 470 JA 1/4W
R1082	401 021 1807	CARBON 560 JA 1/4W
R1101	401 020 2805	CARBON 47K JA 1/4W
R1102	401 016 4707	CARBON 22K JA 1/4W
R1103	401 012 5609	CARBON 1K JA 1/4W
R1104	401 013 5202	CARBON 1.2K JA 1/4W
R1105	401 018 2701	CARBON 330 JA 1/4W
R1106	401 021 1807	CARBON 560 JA 1/4W
R1107	401 012 5609	CARBON 1K JA 1/4W
R1108	401 012 5609	CARBON 1K JA 1/4W
R1109	401 012 6903	CARBON 10K JA 1/4W
R1110	401 023 2703	CARBON 8.2K JA 1/4W
R1111	401 012 5609	CARBON 1K JA 1/4W
R1112	401 015 2605	CARBON 1.8K JA 1/4W
R1113	401 012 8006	CARBON 100K JA 1/4W
R1114	401 019 0904	CARBON 390 JA 1/4W
R1115	401 012 5609	CARBON 1K JA 1/4W
R1116	401 019 1802	CARBON 3.9K JA 1/4W
R1117	401 014 4006	CARBON 1.5K JA 1/4W
R1118	401 022 7105	CARBON 750 JA 1/4W
R1119	401 012 5609	CARBON 1K JA 1/4W
R1120	401 012 4404	CARBON 100 JA 1/4W
R1121	401 012 5609	CARBON 1K JA 1/4W
R1122	401 020 0702	CARBON 470 JA 1/4W
R1123	401 014 4006	CARBON 1.5K JA 1/4W
R1124	401 015 8805	CARBON 200 JA 1/4W
R1125	401 023 1607	CARBON 820 JA 1/4W
R1126	401 012 5609	CARBON 1K JA 1/4W
R1127	401 014 8202	CARBON 160 JA 1/4W
R1152	401 012 5609	CARBON 1K JA 1/4W
R1271	401 022 1806	CARBON 680 JA 1/4W
R1272	401 016 2505	CARBON 220 JA 1/4W
R1301	401 012 6903	CARBON 10K JA 1/4W
R1302	401 012 5609	CARBON 1K JA 1/4W
R1303	401 012 5609	CARBON 1K JA 1/4W
R1304	401 020 2805	CARBON 47K JA 1/4W
R1305	401 016 4707	CARBON 22K JA 1/4W

LOCATION	PARTS NO.	DESCRIPTION
R1306	401 015 4609	CARBON 180K JA 1/4W
R1351	401 016 3700	CARBON 2.2K JA 1/4W
R1352	401 016 3700	CARBON 2.2K JA 1/4W
R1381	401 012 6903	CARBON 10K JA 1/4W
R1391	401 014 2804	CARBON 150 JA 1/4W
R1401	401 016 4707	CARBON 22K JA 1/4W
R1402	401 016 4707	CARBON 22K JA 1/4W
R1403	401 020 1907	CARBON 4.7K JA 1/4W
R1404	401 020 1907	CARBON 4.7K JA 1/4W
R1405	401 020 2805	CARBON 47K JA 1/4W
R1406	401 020 2805	CARBON 47K JA 1/4W
R1407	401 015 2605	CARBON 1.8K JA 1/4W
R1408	401 016 2505	CARBON 220 JA 1/4W
R1601	401 012 5609	CARBON 1K JA 1/4W
R1602	401 012 5609	CARBON 1K JA 1/4W
R1607	401 021 1807	CARBON 560 JA 1/4W
R1608	401 022 6702	CARBON 75 JA 1/4W
R1609	401 013 9408	CARBON 1.3K JA 1/4W
R1610	401 021 1807	CARBON 560 JA 1/4W
R1611	401 012 6903	CARBON 10K JA 1/4W
R1612	401 021 2903	CARBON 5.6K JA 1/4W
R1613	401 021 2903	CARBON 5.6K JA 1/4W
R1614	401 016 4707	CARBON 22K JA 1/4W
R1615	401 021 0602	CARBON 56 JA 1/4W
R1616	401 012 5609	CARBON 1K JA 1/4W
R1641	401 013 9408	CARBON 1.3K JA 1/4W
TH101	407 142 4208	THERMISTOR TD5-C310DB
VR101	613 079 2525	VR,SEMI 1KB
OR	613 120 8537	VR,SEMI 1KB
VR102	613 079 2532	VR,SEMI 10KB
OR	613 120 8544	VR,SEMI 10KB
VR103	613 120 8506	VR,SEMI 4.7KB
OR	613 120 8650	VR,SEMI 4.7KB
VR104	613 079 2532	VR,SEMI 10KB
OR	613 120 8544	VR,SEMI 10KB
VR105	613 079 2525	VR,SEMI 1KB
OR	613 120 8537	VR,SEMI 1KB
VR181	613 001 8953	SEMI VR 470B
OR	613 097 7984	VR,SEMI 470B
VR182	613 001 8977	SEMI VR 1KB
OR	613 097 7892	VR,SEMI 1KB
X1101	613 080 9407	OSC,CRYSTAL 4.43MHZ
OR	613 093 8008	OSC,CRYSTAL 4.433619MHZ
OR	613 120 8865	OSC,CRYSTAL 4.433619MHZ
XF101	613 004 5539	LC PACK 4MHZ LPF
XF111	613 111 3800	FILTER,5.06 4.43M B,1M L

AUDIO CIRCUIT(AD-A)

	613 126 7329	FLEXIBLE FLAT CABLES,CN251
C2001	403 191 8709	ELECT 1U M 50V
C2002	403 075 4506	CERAMIC 820P K 50V
C2004	403 167 6500	ELECT 33U M 6.3V
C2005	403 003 0600	CERAMIC 0.018U K 25V
C2006	403 193 8608	ELECT 0.47U M 50V
C2008	403 001 7403	CERAMIC 4700P K 16V
C2009	403 163 7907	ELECT 47U M 6.3V
C2010	403 189 2405	ELECT 10U M 16V
C2013	403 003 2406	CERAMIC 0.022U J 25V
C2016	403 191 8709	ELECT 1U M 50V
C2017	403 149 0700	ELECT 33U M 16V
C2018	403 191 8600	ELECT 4.7U M 25V
C2019	403 163 8409	ELECT 47U M 16V
C2020	403 071 6207	CERAMIC 220P K 50V

LOCATION	PARTS NO.	DESCRIPTION
C2021	403 081 7409	POLYPRO 0.033U J 100V
C2022	403 001 1609	CERAMIC 0.01U K 16V
C2024	403 002 1905	CERAMIC 0.01U K 25V
C2025	403 003 3700	CERAMIC 0.022U Z 25V
C2051	403 069 1207	CERAMIC 1000P K 50V
C2071	403 075 4001	CERAMIC 820P J 50V
C2072	403 191 8709	ELECT 1U M 50V
C2073	403 003 8606	CERAMIC 0.039U J 25V
C2075	403 191 8600	ELECT 4.7U M 25V
C2301	403 121 3002	ELECT 4.7U M 25V
C2302	403 121 3002	ELECT 4.7U M 25V
C2303	403 121 3002	ELECT 4.7U M 25V
C2304	403 001 1609	CERAMIC 0.01U K 16V
C2305	403 129 5602	ELECT 33U M 10V
C2306	403 121 3002	ELECT 4.7U M 25V
C2307	403 107 9509	ELECT 100U M 10V
C2308	403 135 5009	ELECT 47U M 10V
C2309	403 134 9602	ELECT 47U M 16V
C2310	403 107 9905	ELECT 10U M 16V
C2311	403 163 8003	ELECT 33U M 10V
C2312	403 001 1609	CERAMIC 0.01U K 16V
C2313	403 134 8100	ELECT 100U M 6.3V
C2314	403 001 3801	CERAMIC 1500P K 16V
C2315	403 073 7004	CERAMIC 470P K 50V
C2318	403 001 1609	CERAMIC 0.01U K 16V
C2319	403 135 3500	ELECT 220U M 6.3V
C2320	403 135 5009	ELECT 47U M 10V
C2323	403 193 9001	ELECT 3.3U M 50V
C2401	403 121 3002	ELECT 4.7U M 25V
C2402	403 121 3002	ELECT 4.7U M 25V
C2403	403 121 3002	ELECT 4.7U M 25V
C2404	403 001 1609	CERAMIC 0.01U K 16V
C2405	403 129 5602	ELECT 33U M 10V
C2406	403 121 3002	ELECT 4.7U M 25V
C2407	403 107 9509	ELECT 100U M 10V
C2408	403 135 5009	ELECT 47U M 10V
C2409	403 134 9602	ELECT 47U M 16V
C2410	403 107 9905	ELECT 10U M 16V
C2411	403 129 5602	ELECT 33U M 10V
C2412	403 001 1609	CERAMIC 0.01U K 16V
C2413	403 134 8100	ELECT 100U M 6.3V
C2414	403 001 3801	CERAMIC 1500P K 16V
C2415	403 073 7004	CERAMIC 470P K 50V
C2418	403 001 1609	CERAMIC 0.01U K 16V
C2419	403 135 3500	ELECT 220U M 6.3V
C2420	403 135 5009	ELECT 47U M 10V
C2423	403 135 7805	ELECT 3.3U M 50V
C2501	403 193 9001	ELECT 3.3U M 50V
C2502	403 134 9602	ELECT 47U M 16V
C2503	403 107 9905	ELECT 10U M 16V
C2504	403 125 5606	ELECT 100U M 16V
C2505	403 001 1609	CERAMIC 0.01U K 16V
C2506	403 069 1207	CERAMIC 1000P K 50V
C2507	403 072 7500	CERAMIC 330P J 50V
C2508	403 167 6500	ELECT 33U M 6.3V
C2509	403 191 8600	ELECT 4.7U M 25V
C2510	403 189 2405	ELECT 10U M 16V
C2511	403 107 9905	ELECT 10U M 16V
C2513	403 121 3408	ELECT 2.2U M 50V
C2514	403 134 9602	ELECT 47U M 16V
C2515	403 001 1609	CERAMIC 0.01U K 16V
C2517	403 003 6701	CERAMIC 0.033U K 25V
C2518	403 125 5606	ELECT 100U M 16V
C2520	403 135 5009	ELECT 47U M 10V
C2521	403 069 1207	CERAMIC 1000P K 50V
C2522	403 001 1609	CERAMIC 0.01U K 16V
C2527	403 107 9905	ELECT 10U M 16V
D2001	407 012 4406	DIODE 1SS133-T-77

LOCATION	PARTS NO.	DESCRIPTION
D2001	407 007 9904	DIODE GMA01-BT
D2501	407 012 4406	DIODE 1SS133-T-77
OR	407 007 9904	DIODE GMA01-BT
D2502	407 012 4406	DIODE 1SS133-T-77
OR	407 007 9904	DIODE GMA01-BT
D2509	407 053 6308	ZENER DIODE MTZ5.1B-T-77
D2510	407 012 4406	DIODE 1SS133-T-77
OR	407 007 9904	DIODE GMA01-BT
D2511	407 012 4406	DIODE 1SS133-T-77
OR	407 007 9904	DIODE GMA01-BT
D2512	407 012 4406	DIODE 1SS133-T-77
OR	407 007 9904	DIODE GMA01-BT
D2513	407 012 4406	DIODE 1SS133-T-77
OR	407 007 9904	DIODE GMA01-BT
D2514	407 012 4406	DIODE 1SS133-T-77
OR	407 007 9904	DIODE GMA01-BT
D2515	407 012 4406	DIODE 1SS133-T-77
OR	407 007 9904	DIODE GMA01-BT
D2516	407 099 5303	ZENER DIODE MTZJ5.6B-T-77
D2517	407 012 4406	DIODE 1SS133-T-77
OR	407 007 9904	DIODE GMA01-BT
D2518	407 012 4406	DIODE 1SS133-T-77
OR	407 007 9904	DIODE GMA01-BT
IC201	409 133 1401	IC LA7294
IC231	409 252 4208	IC UPC2354AGF-3B9
IC232	409 036 8408	IC M5237L-TC04A-31
IC233	409 039 7309	IC NJM4556S
L2002	613 014 3037	COIL,INDUCTOR 10MHJ
OR	613 014 3532	HF CHOKE 10MH J
L2003	613 014 2870	COIL,INDUCTOR 560UHK
OR	613 014 3259	HF CHOKE 560UH K
Q2001	405 024 9709	TR 2SD734-E-AA
OR	405 024 9907	TR 2SD734-F-AA
Q2303	405 076 6404	TR DTC343T-STP
Q2304	405 076 6404	TR DTC343T-STP
Q2403	405 076 6404	TR DTC343T-STP
Q2404	405 076 6404	TR DTC343T-STP
Q2502	405 007 3106	TR 2SB544-F-MP-AE
Q2503	405 089 2103	TR 2SC4483-S-AN
Q2504	405 018 2501	TR 2SC3399-AC
OR	405 000 6104	TR DTC144ES-DCTP
Q2505	405 000 6104	TR DTC144ES-DCTP
Q2506	405 018 2501	TR 2SC3399-AC
OR	405 000 6104	TR DTC144ES-DCTP
Q2507	405 003 7702	TR 2SA1346-AC
OR	405 000 1208	TR DTA124ES-DCTP
Q2508	405 018 2501	TR 2SC3399-AC
OR	405 000 6104	TR DTC144ES-DCTP
Q2509	405 003 7702	TR 2SA1346-AC
OR	405 000 1208	TR DTA124ES-DCTP
Q2512	405 003 7702	TR 2SA1346-AC
OR	405 000 1208	TR DTA124ES-DCTP
Q2514	405 018 2501	TR 2SC3399-AC
OR	405 000 6104	TR DTC144ES-DCTP
Q2515	405 018 2501	TR 2SC3399-AC
OR	405 000 6104	TR DTC144ES-DCTP
Q2518	405 018 2808	TR 2SC3402-AC
OR	405 000 3103	TR DTC114ES-DCTP
Q2519	405 018 2501	TR 2SC3399-AC
OR	405 000 6104	TR DTC144ES-DCTP
Q2522	405 024 0409	TR 2SD545-F-NP-AA
Q2523	405 018 2808	TR 2SC3402-AC
OR	405 000 3103	TR DTC114ES-DCTP
R2001	401 012 4404	CARBON 100 JA 1/4W
R2002	401 017 1705	CARBON 2.7K JA 1/4W

LOCATION	PARTS NO.	DESCRIPTION
R2003	401 013 4106	CARBON 120 JA 1/4W
R2004	401 019 3905	CARBON 390K JA 1/4W
R2005	401 021 8905	CARBON 6.2K JA 1/4W
R2006	401 017 1705	CARBON 2.7K JA 1/4W
R2007	401 012 5609	CARBON 1K JA 1/4W
R2008	401 022 7600	CARBON 7.5K JA 1/4W
R2009	401 018 6501	CARBON 3.3M JA 1/4W
R2010	401 012 6903	CARBON 10K JA 1/4W
R2011	401 023 7401	CARBON 9.1K JA 1/4W
R2012	401 019 7705	CARBON 4.3K JA 1/4W
R2013	401 012 5609	CARBON 1K JA 1/4W
R2014	401 015 2605	CARBON 1.8K JA 1/4W
R2016	401 012 8006	CARBON 100K JA 1/4W
R2018	401 015 3701	CARBON 18K JA 1/4W
R2019	401 015 3701	CARBON 18K JA 1/4W
R2021	401 012 3308	CARBON 10 JA 1/4W
R2022	401 019 9501	CARBON 47 JA 1/4W
R2023	401 014 5102	CARBON 15K JA 1/4W
R2024	401 015 6405	CARBON 2.2 JA 1/4W
R2051	401 012 5609	CARBON 1K JA 1/4W
R2071	401 013 4106	CARBON 120 JA 1/4W
R2072	401 012 6903	CARBON 10K JA 1/4W
R2091	401 021 2903	CARBON 5.6K JA 1/4W
R2092	401 021 2903	CARBON 5.6K JA 1/4W
R2301	401 017 2702	CARBON 27K JA 1/4W
R2302	401 020 2805	CARBON 47K JA 1/4W
R2303	401 015 3701	CARBON 18K JA 1/4W
R2304	401 020 2805	CARBON 47K JA 1/4W
R2305	401 017 2702	CARBON 27K JA 1/4W
R2306	401 020 2805	CARBON 47K JA 1/4W
R2307	401 012 5609	CARBON 1K JA 1/4W
R2308	401 012 6903	CARBON 10K JA 1/4W
R2309	401 022 3008	CARBON 6.8K JA 1/4W
R2310	401 020 0702	CARBON 470 JA 1/4W
R2311	401 016 0402	CARBON 200K JA 1/4W
R2312	401 017 9701	CARBON 30K JA 1/4W
R2313	401 087 2909	MT-FILM 12K FD 1/6W
R2314	401 014 9001	CARBON 16K JA 1/4W
R2315	401 016 9603	CARBON 27 JA 1/4W
R2316	401 016 3700	CARBON 2.2K JA 1/4W
R2317	401 016 2505	CARBON 220 JA 1/4W
R2318	401 020 1907	CARBON 4.7K JA 1/4W
R2323	401 020 1907	CARBON 4.7K JA 1/4W
R2401	401 017 2702	CARBON 27K JA 1/4W
R2402	401 020 2805	CARBON 47K JA 1/4W
R2403	401 015 3701	CARBON 18K JA 1/4W
R2404	401 020 2805	CARBON 47K JA 1/4W
R2405	401 017 2702	CARBON 27K JA 1/4W
R2406	401 020 2805	CARBON 47K JA 1/4W
R2407	401 012 5609	CARBON 1K JA 1/4W
R2408	401 012 6903	CARBON 10K JA 1/4W
R2409	401 022 3008	CARBON 6.8K JA 1/4W
R2410	401 020 0702	CARBON 470 JA 1/4W
R2411	401 016 0402	CARBON 200K JA 1/4W
R2412	401 017 9701	CARBON 30K JA 1/4W
R2413	401 091 3305	MT-FILM 7.5K FD 1/6W
R2414	401 020 1907	CARBON 4.7K JA 1/4W
R2415	401 016 9603	CARBON 27 JA 1/4W
R2416	401 016 3700	CARBON 2.2K JA 1/4W
R2417	401 016 2505	CARBON 220 JA 1/4W
R2501	401 012 6903	CARBON 10K JA 1/4W
R2502	401 012 6903	CARBON 10K JA 1/4W
R2503	401 012 6903	CARBON 10K JA 1/4W
R2504	401 013 6308	CARBON 12K JA 1/4W
R2505	401 012 6903	CARBON 10K JA 1/4W
R2506	401 020 1907	CARBON 4.7K JA 1/4W
R2507	401 020 1907	CARBON 4.7K JA 1/4W
R2509	401 012 9201	CARBON 1M JA 1/4W
R2510	401 012 8006	CARBON 100K JA 1/4W

LOCATION	PARTS NO.	DESCRIPTION
R2513	401 012 6903	CARBON 10K JA 1/4W
R2514	401 023 7401	CARBON 9.1K JA 1/4W
R2515	401 012 6903	CARBON 10K JA 1/4W
R2518	401 017 8506	CARBON 300 JA 1/4W
R2519	401 019 2908	CARBON 39K JA 1/4W
R2520	401 016 4707	CARBON 22K JA 1/4W
R2521	401 017 9701	CARBON 30K JA 1/4W
R2522	401 020 1907	CARBON 4.7K JA 1/4W
R2523	401 012 6903	CARBON 10K JA 1/4W
R2524	401 012 6903	CARBON 10K JA 1/4W
R2525	401 018 4804	CARBON 33K JA 1/4W
R2526	401 016 4707	CARBON 22K JA 1/4W
R2527	401 019 1802	CARBON 3.9K JA 1/4W
R2528	401 016 4707	CARBON 22K JA 1/4W
R2529	401 018 8307	CARBON 36K JA 1/4W
R2531	401 012 5609	CARBON 1K JA 1/4W
R2534	401 016 2505	CARBON 220 JA 1/4W
R2536	401 019 7705	CARBON 4.3K JA 1/4W
R2537	401 018 4804	CARBON 33K JA 1/4W
R2538	401 020 1907	CARBON 4.7K JA 1/4W
R2539	401 019 7200	CARBON 430 JA 1/4W
R2540	401 012 6903	CARBON 10K JA 1/4W
R2541	401 020 1907	CARBON 4.7K JA 1/4W
R2542	401 016 4707	CARBON 22K JA 1/4W
R2544	401 087 4804	MT-FILM 8.2K FD 1/6W
R2545	401 012 6903	CARBON 10K JA 1/4W
R2547	401 014 4006	CARBON 1.5K JA 1/4W
R2548	401 012 6903	CARBON 10K JA 1/4W
R2551	401 020 1907	CARBON 4.7K JA 1/4W
R2552	401 020 1907	CARBON 4.7K JA 1/4W
R2557	401 015 2605	CARBON 1.8K JA 1/4W
R2558	401 021 2903	CARBON 5.6K JA 1/4W
T2001	613 016 2205	OSC COIL 70KHZ
OR	613 094 3378	TRANS,OSC 70KHZ
VR201	613 001 9097	SEMI VR 100KB
VR233	613 001 5853	SEMI VR 10KB
VR234	613 001 5853	SEMI VR 10KB
VR235	613 001 9424	SEMI VR 20KB
OR	613 079 2549	VR,SEMI 20KB
VR236	613 001 9424	SEMI VR 20KB
OR	613 079 2549	VR,SEMI 20KB
VR239	613 001 9400	SEMI VR 5KB
OR	613 112 4912	VR,SEMI 5KB
VR243	613 001 5648	SEMI VR 100KB

SYSTEM CONTROL & SERVO CIRCUIT(SV-A)

C3001	403 121 9509	CERAMIC 0.1U Z 50V
C3002	403 159 8109	ELECT 100U M 6.3V
C3003	403 139 1601	ELECT 22U M 16V
C3004	403 121 9509	CERAMIC 0.1U Z 50V
C3005	403 069 1207	CERAMIC 1000P K 50V
C3006	403 012 6006	CERAMIC 15P J 50V
C3007	403 017 9705	CERAMIC 22P J 50V
C3008	403 001 1609	CERAMIC 0.01U K 16V
C3009	403 010 7807	CERAMIC 12P J 50V
C3010	403 068 9402	CERAMIC 100P K 50V
C3012	403 001 1609	CERAMIC 0.01U K 16V
C3013	403 001 1609	CERAMIC 0.01U K 16V
C3014	403 139 1403	ELECT 47U M 10V
C3016	403 069 1207	CERAMIC 1000P K 50V
C3017	403 001 1609	CERAMIC 0.01U K 16V
C3018	403 001 1609	CERAMIC 0.01U K 16V
C3019	403 069 1207	CERAMIC 1000P K 50V
C3021	403 001 1609	CERAMIC 0.01U K 16V
C3022	403 001 1609	CERAMIC 0.01U K 16V
C3023	403 069 1207	CERAMIC 1000P K 50V

LOCATION	PARTS NO.	DESCRIPTION
C3024	403 204 5107	NP-ELECT 10U M 25V
C3025	403 204 5107	NP-ELECT 10U M 25V
C3026	403 069 1207	CERAMIC 1000P K 50V
C3027	403 139 2905	ELECT 2.2U M 50V
C3028	403 121 9509	CERAMIC 0.1U Z 50V
C3029	403 002 2506	CERAMIC 0.01U M 25V
C3501	403 003 2802	CERAMIC 0.022U K 25V
C3502	403 071 6207	CERAMIC 220P K 50V
C3503	403 071 6207	CERAMIC 220P K 50V
C3504	403 001 6208	CERAMIC 2700P M 16V
C3505	403 001 1609	CERAMIC 0.01U K 16V
C3506	403 003 2802	CERAMIC 0.022U K 25V
C3507	403 119 6701	CERAMIC 0.068U K 16V
OR	403 214 2707	CERAMIC 0.068U K 16V
C3509	403 072 8200	CERAMIC 330P K 50V
C3512	403 139 1007	ELECT 47U M 6.3V
C3513	403 001 1609	CERAMIC 0.01U K 16V
C3514	403 086 2904	NP-ELECT 1U M 50V
C3515	403 139 1502	ELECT 10U M 16V
C3516	403 139 3001	ELECT 3.3U M 50V
C3517	403 074 9205	CERAMIC 680P K 50V
C3518	403 085 6101	NP-ELECT 33U M 16V
C3519	403 069 1207	CERAMIC 1000P K 50V
C3520	403 184 9102	MT-POLYEST 0.033U J 50V
C3521	403 069 1207	CERAMIC 1000P K 50V
C3522	403 139 1007	ELECT 47U M 6.3V
C3524	403 001 1906	CERAMIC 0.01U M 16V
C3525	403 139 2707	ELECT 1U M 50V
C3526	403 086 2904	NP-ELECT 1U M 50V
C3527	403 001 1609	CERAMIC 0.01U K 16V
C3528	403 139 2400	ELECT 0.22U M 50V
C3529	403 001 1609	CERAMIC 0.01U K 16V
C3530	403 121 9509	CERAMIC 0.1U Z 50V
C3951	403 059 2900	POLYESTER 2200P J 50V
OR	403 059 3006	POLYESTER 2200P J 50V
C3952	403 139 2707	ELECT 1U M 50V
C3953	403 139 1007	ELECT 47U M 6.3V
C3954	403 003 3700	CERAMIC 0.022U Z 25V
C3955	403 068 9402	CERAMIC 100P K 50V
C3956	403 139 2707	ELECT 1U M 50V
D3001	407 078 2705	DIODE 1SS244-T-77
D3010	407 007 9904	DIODE GMA01-BT
OR	407 012 4406	DIODE 1SS133-T-77
D3021	407 070 8101	ZENER DIODE GZS8.2Y-BT
OR	407 063 9504	ZENER DIODE MTZJ8.2B-T-77
D3022	407 051 6904	ZENER DIODE GZS5.6Y-BT
OR	407 099 5303	ZENER DIODE MTZJ5.6B-T-77
D3023	407 007 9904	DIODE GMA01-BT
OR	407 012 4406	DIODE 1SS133-T-77
D3025	407 007 9904	DIODE GMA01-BT
OR	407 012 4406	DIODE 1SS133-T-77
D3501	407 007 9904	DIODE GMA01-BT
OR	407 012 4406	DIODE 1SS133-T-77
D3504	407 007 9904	DIODE GMA01-BT
OR	407 012 4406	DIODE 1SS133-T-77
D3505	407 007 9904	DIODE GMA01-BT
OR	407 012 4406	DIODE 1SS133-T-77
D3506	407 007 9904	DIODE GMA01-BT
OR	407 012 4406	DIODE 1SS133-T-77
D3951	407 007 9904	DIODE GMA01-BT
OR	407 012 4406	DIODE 1SS133-T-77
D3952	407 007 9904	DIODE GMA01-BT
OR	407 012 4406	DIODE 1SS133-T-77
D3953	407 007 9904	DIODE GMA01-BT
OR	407 012 4406	DIODE 1SS133-T-77
IC301	410 128 9500	IC UPD78136GF-012-3B9
IC302	409 032 3704	IC MN1280-R

LOCATION	PARTS NO.	DESCRIPTION
IC302	409 032 3803	IC MN1280-S
OR	409 243 4200	IC MN1380-R
OR	409 243 4309	IC MN1380-S
IC303	409 114 4803	IC LB1641
IC352	409 178 3200	IC LA7124
IC391	409 225 6109	IC BA7046
L3005	613 014 1187	COIL,INDUCTOR 68UHJ
OR	613 014 4706	HF CHOKE 68UH J
Q3001	405 019 2807	TR 2SC536-F-SPA-AC
Q3002	405 019 2807	TR 2SC536-F-SPA-AC
Q3005	405 015 2603	TR 2SC2669-Y-TPE4
OR	405 016 1100	TR 2SC2839-F-SPA-AC
Q3006	405 019 2807	TR 2SC536-F-SPA-AC
Q3007	405 018 2808	TR 2SC3402-AC
Q3022	405 000 6104	TR DTC144ES-DCTP
OR	405 018 2501	TR 2SC3399-AC
Q3023	405 000 3103	TR DTC114ES-DCTP
OR	405 018 2808	TR 2SC3402-AC
Q3024	405 000 3103	TR DTC114ES-DCTP
OR	405 018 2808	TR 2SC3402-AC
Q3501	405 019 2807	TR 2SC536-F-SPA-AC
Q3601	405 000 6104	TR DTC144ES-DCTP
OR	405 018 2501	TR 2SC3399-AC
Q3602	405 000 6104	TR DTC144ES-DCTP
OR	405 018 2501	TR 2SC3399-AC
Q3952	405 016 1100	TR 2SC2839-F-SPA-AC
Q3953	405 000 6104	TR DTC144ES-DCTP
OR	405 018 2501	TR 2SC3399-AC
R3001	401 018 3708	CARBON 3.3K JA 1/4W
R3002	401 012 6903	CARBON 10K JA 1/4W
R3003	401 020 1907	CARBON 4.7K JA 1/4W
R3006	401 022 7105	CARBON 750 JA 1/4W
R3007	401 012 5609	CARBON 1K JA 1/4W
R3008	401 016 3700	CARBON 2.2K JA 1/4W
R3009	401 023 2703	CARBON 8.2K JA 1/4W
R3010	401 012 5609	CARBON 1K JA 1/4W
R3011	401 019 1802	CARBON 3.9K JA 1/4W
R3012	401 020 0702	CARBON 470 JA 1/4W
R3014	401 019 1802	CARBON 3.9K JA 1/4W
R3015	401 012 5609	CARBON 1K JA 1/4W
R3016	401 018 4804	CARBON 33K JA 1/4W
R3017	401 018 4804	CARBON 33K JA 1/4W
R3018	401 012 6903	CARBON 10K JA 1/4W
R3031	401 012 5609	CARBON 1K JA 1/4W
R3032	401 012 5609	CARBON 1K JA 1/4W
R3033	401 012 5609	CARBON 1K JA 1/4W
R3034	401 020 1907	CARBON 4.7K JA 1/4W
R3035	401 020 1907	CARBON 4.7K JA 1/4W
R3036	401 020 1907	CARBON 4.7K JA 1/4W
R3041	401 020 1907	CARBON 4.7K JA 1/4W
R3042	401 016 0402	CARBON 200K JA 1/4W
R3043	401 016 0402	CARBON 200K JA 1/4W
R3044	401 012 5609	CARBON 1K JA 1/4W
R3045	401 012 5609	CARBON 1K JA 1/4W
R3046	401 012 5609	CARBON 1K JA 1/4W
R3047	401 012 5609	CARBON 1K JA 1/4W
R3048	401 012 5609	CARBON 1K JA 1/4W
R3049	401 020 2805	CARBON 47K JA 1/4W
R3050	401 018 4804	CARBON 33K JA 1/4W
R3051	401 020 1907	CARBON 4.7K JA 1/4W
R3052	401 012 5609	CARBON 1K JA 1/4W
R3053	401 016 4707	CARBON 22K JA 1/4W
R3054	401 014 7106	CARBON 1.5M JA 1/4W
R3055	401 012 6903	CARBON 10K JA 1/4W
R3059	401 020 2805	CARBON 47K JA 1/4W
R3060	401 018 4804	CARBON 33K JA 1/4W

LOCATION	PARTS NO.	DESCRIPTION
R3061	401 014 7106	CARBON 1.5M JA 1/4W
R3062	401 016 4707	CARBON 22K JA 1/4W
R3063	401 022 7105	CARBON 750 JA 1/4W
R3064	402 036 4401	FUSIBLE RES 3.3 JA 1/2W
OR	402 036 3701	FUSIBLE RES 3.3 JA 1/2W
R3065	401 012 6903	CARBON 10K JA 1/4W
R3066	401 012 6903	CARBON 10K JA 1/4W
R3068	401 014 5102	CARBON 15K JA 1/4W
R3501	401 012 5609	CARBON 1K JA 1/4W
R3502	401 016 4707	CARBON 22K JA 1/4W
R3503	401 012 8006	CARBON 100K JA 1/4W
R3504	401 012 6903	CARBON 10K JA 1/4W
R3506	401 012 8006	CARBON 100K JA 1/4W
R3507	401 012 8006	CARBON 100K JA 1/4W
R3510	401 012 6903	CARBON 10K JA 1/4W
R3511	401 012 5609	CARBON 1K JA 1/4W
R3514	401 016 3700	CARBON 2.2K JA 1/4W
R3515	401 016 3700	CARBON 2.2K JA 1/4W
R3516	401 023 6909	CARBON 910 JA 1/4W
R3517	401 012 5609	CARBON 1K JA 1/4W
R3518	401 015 4609	CARBON 180K JA 1/4W
R3519	401 013 6308	CARBON 12K JA 1/4W
R3520	401 021 9902	CARBON 620K JA 1/4W
R3521	401 022 8508	CARBON 750K JA 1/4W
R3522	401 014 6000	CARBON 150K JA 1/4W
R3523	401 012 8006	CARBON 100K JA 1/4W
R3524	401 012 8006	CARBON 100K JA 1/4W
R3525	401 018 7508	CARBON 360 JA 1/4W
R3526	401 020 7800	CARBON 510 JA 1/4W
R3527	401 020 7800	CARBON 510 JA 1/4W
R3528	401 012 6903	CARBON 10K JA 1/4W
R3529	401 012 6903	CARBON 10K JA 1/4W
R3530	401 012 5609	CARBON 1K JA 1/4W
R3531	401 012 5609	CARBON 1K JA 1/4W
R3532	401 012 5609	CARBON 1K JA 1/4W
R3533	401 012 8006	CARBON 100K JA 1/4W
R3534	401 012 5609	CARBON 1K JA 1/4W
R3951	401 020 3802	CARBON 470K JA 1/4W
R3952	401 107 8003	MT-FILM 130K FD 1/4W
R3953	401 012 6903	CARBON 10K JA 1/4W
R3954	401 012 5609	CARBON 1K JA 1/4W
R3955	401 020 3802	CARBON 470K JA 1/4W
R3956	401 018 3708	CARBON 3.3K JA 1/4W
R3957	401 018 3708	CARBON 3.3K JA 1/4W
R3958	401 012 8006	CARBON 100K JA 1/4W
R3959	401 016 3700	CARBON 2.2K JA 1/4W
R3960	401 017 1705	CARBON 2.7K JA 1/4W
R3961	401 016 3700	CARBON 2.2K JA 1/4W
R3962	401 016 3700	CARBON 2.2K JA 1/4W
VR351	613 001 9110	SEMI VR 220KB
OR	613 097 7953	VR,SEMI 220KB
VR353	613 001 9035	SEMI VR 10KB
OR	613 097 7908	VR,SEMI 10KB
VR354	613 001 9035	SEMI VR 10KB
OR	613 097 7908	VR,SEMI 10KB
XF301	613 129 4462	OSC,CRYSTAL 12MHZ

POWER SUPPLY CIRCUIT(PW-A)

LOCATION	PARTS NO.	DESCRIPTION
C5401	403 001 1609	CERAMIC 0.01U K 16V
C5402	403 139 1007	ELECT 47U M 6.3V
C5403	403 134 8100	ELECT 100U M 6.3V
D5401	407 012 4406	DIODE 1SS133-T-77
D5402	407 099 5204	ZENER DIODE MTZJ5.1B-T-77
Q5401	405 088 9103	TR 2SA1703-S-AN
Q5401	405 108 6907	TR 2SB1322A-R(TA)
OR	405 108 7003	TR 2SB1322A-S(TA)
Q5402	405 107 4102	TR 2SD1994-R (TA)
OR	405 107 4201	TR 2SD1994-S (TA)
OR	405 089 2103	TR 2SC4483-S-AN
R5401	401 021 8905	CARBON 6.2K JA 1/4W
R5402	401 016 3700	CARBON 2.2K JA 1/4W
R5403	401 012 5609	CARBON 1K JA 1/4W
R5404 ⚠	402 004 2200	FUSIBLE RES 5.6 JA 1/4W

COMPL PCB,VP-1

COMPL.NO. 613 132 6545

VIDEO PRE-AMP. CIRCUIT(VP-A)

LOCATION	PARTS NO.	DESCRIPTION
C1801	403 071 8102	CERAMIC 2200P K 50V
C1802	403 071 8102	CERAMIC 2200P K 50V
C1803	403 071 8102	CERAMIC 2200P K 50V
C1804	403 073 1200	CERAMIC 0.033U K 50V
C1805	403 191 8709	ELECT 1U M 50V
C1806	403 071 8102	CERAMIC 2200P K 50V
C1807	403 073 1200	CERAMIC 0.033U K 50V
C1808	403 073 1200	CERAMIC 0.033U K 50V
C1812	403 069 5601	CERAMIC 0.01U K 50V
C1813	403 069 5601	CERAMIC 0.01U K 50V
C1814	403 073 1200	CERAMIC 0.033U K 50V
C1815	403 069 5601	CERAMIC 0.01U K 50V
C1816	403 069 5601	CERAMIC 0.01U K 50V
C1817	403 069 1702	CERAMIC 1000P K 50V
C1818	403 154 3307	OS-SOLID 4.7U M 10V
C1820	403 154 5806	OS-SOLID 6.8U M 16V
C1851	403 069 5601	CERAMIC 0.01U K 50V
C1852	403 022 8304	CERAMIC 33P J 50V
C1853	403 022 8304	CERAMIC 33P J 50V
C1854	403 026 2902	CERAMIC 47P J 50V
C1855	403 030 7009	CERAMIC 68P J 50V
C1861	403 070 1005	CERAMIC 0.1U K 50V
C1891	403 191 8709	ELECT 1U M 50V
C1892	403 073 1200	CERAMIC 0.033U K 50V
C1893	403 073 1200	CERAMIC 0.033U K 50V
C1895	403 069 1702	CERAMIC 1000P K 50V
C1896	403 073 1200	CERAMIC 0.033U K 50V
IC181	409 161 9806	IC LA7321
J1835	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
J1836	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
J1837	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
J1838	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
J1847	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
J1850	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
J1851	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
J1860	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
J1891	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
J1899	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
L1851	613 014 0821	COIL,INDUCTOR 5.6UHK
OR	613 014 4348	HF CHOKE 5.6UH K
L1852	613 014 0944	COIL,INDUCTOR 56UHK
OR	613 014 4461	HF CHOKE 56UH K
L1853	613 014 0876	COIL,INDUCTOR 15UHK
OR	613 014 4393	HF CHOKE 15UH K
L1854	613 014 0876	COIL,INDUCTOR 15UHK
OR	613 014 4393	HF CHOKE 15UH K
Q1851	405 035 6100	TR 2SC2413K-T96-Q
OR	405 015 9701	TR 2SC2814-F4-TB
Q1852	405 035 6100	TR 2SC2413K-T96-Q

LOCATION	PARTS NO.	DESCRIPTION
Q1852	405 015 9701	TR 2SC2814-F4-TB
Q1855	405 014 4400	TR 2SC2412K-T96-Q
OR	405 014 4509	TR 2SC2412K-T96-R
OR	405 014 4608	TR 2SC2412K-T96-S
OR	405 015 8407	TR 2SC2812-L5-TB
OR	405 015 8704	TR 2SC2812-L6-TB
Q1872	405 002 0308	TR 2SA1037K-T96-R
OR	405 002 0407	TR 2SA1037K-T96-S
OR	405 002 6508	TR 2SA1179-M5-TB
OR	405 002 6706	TR 2SA1179-M6-TB
Q1893	405 029 3504	TR DTC144EK-T96
OR	405 018 1900	TR 2SC3395-TB
Q1894	405 029 3504	TR DTC144EK-T96
OR	405 018 1900	TR 2SC3395-TB
Q1895	405 029 3504	TR DTC144EK-T96
OR	405 018 1900	TR 2SC3395-TB
Q1896	405 029 3504	TR DTC144EK-T96
OR	405 018 1900	TR 2SC3395-TB
R1801	401 037 9200	MT-GLAZE 1.8K JA 1/10W
R1802	401 038 8103	MT-GLAZE 6.8 JA 1/10W
R1803	401 038 0503	MT-GLAZE 22 JA 1/10W
R1804	401 038 0602	MT-GLAZE 220 JA 1/10W
R1805	401 037 6605	MT-GLAZE 120 JA 1/10W
R1806	401 038 2002	MT-GLAZE 270 JA 1/10W
R1851	401 038 5003	MT-GLAZE 390 JA 1/10W
R1852	401 038 0800	MT-GLAZE 22K JA 1/10W
R1853	401 038 0800	MT-GLAZE 22K JA 1/10W
R1854	401 038 5003	MT-GLAZE 390 JA 1/10W
R1855	401 038 5003	MT-GLAZE 390 JA 1/10W
R1856	401 037 5400	MT-GLAZE 1K JA 1/10W
R1857	401 039 0304	MT-GLAZE 820 JA 1/10W
R1858	401 039 0304	MT-GLAZE 820 JA 1/10W
R1859	401 037 5400	MT-GLAZE 1K JA 1/10W
R1860	401 038 3504	MT-GLAZE 330 JA 1/10W
R1869	401 037 5400	MT-GLAZE 1K JA 1/10W
R1874	401 037 9200	MT-GLAZE 1.8K JA 1/10W
R1891	401 038 0503	MT-GLAZE 22 JA 1/10W
R1892	401 038 6406	MT-GLAZE 4.7K JA 1/10W
R1894	401 038 7700	MT-GLAZE 5.6K JA 1/10W
R1895	401 038 6406	MT-GLAZE 4.7K JA 1/10W
R1896	401 038 7700	MT-GLAZE 5.6K JA 1/10W
R1897	401 038 6406	MT-GLAZE 4.7K JA 1/10W

AUDIO PRE-AMP. CIRCUIT(AP-A)

LOCATION	PARTS NO.	DESCRIPTION
C2901	403 001 1609	CERAMIC 0.01U K 16V
C2902	403 163 8409	ELECT 47U M 16V
C2903	403 001 1609	CERAMIC 0.01U K 16V
C2904	403 001 1609	CERAMIC 0.01U K 16V
C2905	403 001 1609	CERAMIC 0.01U K 16V
C2906	403 001 1609	CERAMIC 0.01U K 16V
C2907	403 001 1609	CERAMIC 0.01U K 16V
C2908	403 163 7907	ELECT 47U M 6.3V
C2909	403 001 1609	CERAMIC 0.01U K 16V
C2910	403 001 1609	CERAMIC 0.01U K 16V
C2911	403 193 8202	ELECT 0.1U M 50V
C2912	403 001 1609	CERAMIC 0.01U K 16V
C2914	403 001 1609	CERAMIC 0.01U K 16V
C2916	403 193 8202	ELECT 0.1U M 50V
C2917	403 121 9509	CERAMIC 0.1U Z 50V
IC291	409 208 5808	IC UPC2350GS
L2901	613 015 6730	COIL,INDUCTOR 100UHK
L2902	613 015 6730	COIL,INDUCTOR 100UHK
R2901	401 012 5609	CARBON 1K JA 1/4W
R2903	401 016 4707	CARBON 22K JA 1/4W
R2904	401 016 4707	CARBON 22K JA 1/4W
R2907	401 012 3308	CARBON 10 JA 1/4W
R2908	401 012 3308	CARBON 10 JA 1/4W
R2911	401 022 6702	CARBON 75 JA 1/4W

COMPL PCB,AD-2

COMPL.NO. 613 127 5393

LOCATION	PARTS NO.	DESCRIPTION
	613 079 0798	HOLDER,LEVEL METER
	613 108 4254	HOLDER,MIC HEAD PHONE
	411 132 7803	SCR S-TPG BIN 2X8,MIC HEAD PHONE
A2701	613 118 2226	LEVEL METER
C2709	403 189 2405	ELECT 10U M 16V
C2710	403 189 2405	ELECT 10U M 16V
C2711	403 001 1609	CERAMIC 0.01U K 16V
C2712	403 001 1609	CERAMIC 0.01U K 16V
JK272	613 091 4071	JACK,HEADPHONE
L2701	613 014 1200	COIL,INDUCTOR 100UHJ
L2702	613 014 1200	COIL,INDUCTOR 100UHJ
R2709	401 012 6903	CARBON 10K JA 1/4W
R2710	401 012 6903	CARBON 10K JA 1/4W
R2711	401 012 5609	CARBON 1K JA 1/4W
R2731	401 020 0801	CARBON 470 JA 1/4W
R2732	401 020 0801	CARBON 470 JA 1/4W
RR271	613 103 9490	IR RECEIVER PACK UNIT
S2701	613 081 0939	SLIDE SWITCH 2-3,METER
S2702	613 081 0922	SLIDE SWITCH 1-2
S2703	613 006 3649	PUSH SWITCH,EJECT
OR	613 079 4130	SW,PUSH,EJECT
OR	613 092 1734	SW,PUSH,EJECT
OR	613 092 0751	SW,PUSH,EJECT
S2704	613 006 3649	PUSH SWITCH,POWER
OR	613 079 4130	SW,PUSH,POWER
OR	613 092 1734	SW,PUSH,POWER
OR	613 092 0751	SW,PUSH,POWER
S2705	613 081 0922	SLIDE SWITCH 1-2
VR241	613 001 9417	SEMI VR 10KB
OR	613 079 2532	VR,SEMI 10KB
VR242	613 001 9417	SEMI VR 10KB
OR	613 079 2532	VR,SEMI 10KB
VR270	613 108 5442	VR,ROTARY 10KB
VR271	613 108 5435	VR,ROTARY 10KB
VR272	613 108 5442	VR,ROTARY 10KB
VR277	613 108 5442	VR,ROTARY 10KB

COMPL PCB,CP-B

COMPL.NO. 613 127 6826

TUNER CIRCUIT(TN-B)

LOCATION	PARTS NO.	DESCRIPTION
	613 126 7312	FLEXIBLE FLAT CABLES,CN601
C6006	403 125 5606	ELECT 100U M 16V
C6008	403 109 6308	ELECT 1U M 50V
C6009	403 135 7409	ELECT 22U M 50V
C6010	403 121 9509	CERAMIC 0.1U Z 50V
C6011	403 121 3002	ELECT 4.7U M 25V
C6012	403 121 3002	ELECT 4.7U M 25V
C6016	403 125 5606	ELECT 100U M 16V
C6017	403 001 1906	CERAMIC 0.01U M 16V

LOCATION	PARTS NO.	DESCRIPTION
D6001	407 007 9904	DIODE GMA01-BT
OR	407 012 4406	DIODE 1SS133-T-77
D6003	407 012 4406	DIODE 1SS133-T-77
OR	407 007 9904	DIODE GMA01-BT
D6004	407 012 4406	DIODE 1SS133-T-77
OR	407 007 9904	DIODE GMA01-BT
D6005	407 012 4406	DIODE 1SS133-T-77
OR	407 007 9904	DIODE GMA01-BT
D6006	407 012 4406	DIODE 1SS133-T-77
OR	407 007 9904	DIODE GMA01-BT
D6014	407 012 4406	DIODE 1SS133-T-77
OR	407 007 9904	DIODE GMA01-BT
D6015	407 012 4406	DIODE 1SS133-T-77
OR	407 007 9904	DIODE GMA01-BT
D6016	407 012 4406	DIODE 1SS133-T-77
OR	407 007 9904	DIODE GMA01-BT
D6021	407 078 1104	ZENER DIODE MTZ33A-T-77
OR	407 078 1203	ZENER DIODE MTZ33B-T-77
IC602	409 148 5005	IC M6M80021P
L6007	613 015 6617	COIL,INDUCTOR 10UHK
Q6002	405 004 4007	TR 2SA608-E-SPA-AC
OR	405 004 4601	TR 2SA608-F-SPA-AC
OR	405 006 1707	TR 2SA933S-TP-Q
OR	405 006 1806	TR 2SA933S-T93-R
OR	405 093 0508	TR KSA1175-Y
Q6003	405 019 2005	TR 2SC536-E-SPA-AC
OR	405 019 2807	TR 2SC536-F-SPA-AC
OR	405 093 0607	TR KSC2785-Y
OR	405 011 8401	TR 2SC1740S-DCTP-Q
OR	405 011 8500	TR 2SC1740S-DCTP-R
Q6004	405 019 2005	TR 2SC536-E-SPA-AC
OR	405 019 2807	TR 2SC536-F-SPA-AC
OR	405 093 0607	TR KSC2785-Y
OR	405 011 8401	TR 2SC1740S-DCTP-Q
OR	405 011 8500	TR 2SC1740S-DCTP-R
Q6007	405 003 7603	TR 2SA1345-AC
OR	405 000 2205	TR DTA144ES-DCTP
Q6008	405 018 2501	TR 2SC3399-AC
OR	405 000 6104	TR DTC144ES-DCTP
R6001	401 018 2701	CARBON 330 JA 1/4W
R6002	401 019 0904	CARBON 390 JA 1/4W
R6006	401 019 3905	CARBON 390K JA 1/4W
R6007	401 021 4907	CARBON 560K JA 1/4W
R6008	401 012 5609	CARBON 1K JA 1/4W
R6014	401 015 9406	CARBON 2K JA 1/4W
R6015	401 012 6903	CARBON 10K JA 1/4W
R6016	401 012 6903	CARBON 10K JA 1/4W
R6017	401 023 7807	CARBON 91K JA 1/4W
R6018	401 023 7807	CARBON 91K JA 1/4W
R6019	401 016 3700	CARBON 2.2K JA 1/4W
R6025	401 012 6903	CARBON 10K JA 1/4W
R6026	401 012 8006	CARBON 100K JA 1/4W
R6027	401 012 6903	CARBON 10K JA 1/4W

TIMER CIRCUIT(TM-B)

LOCATION	PARTS NO.	DESCRIPTION
	613 126 7336	FLEXIBLE FLAT CABLES,CN701
C7001	403 155 2804	DL-ELECT 0.047F Z 5.5V
OR	403 212 9104	DL-ELECT 0.1F Z 5.5V
D7001	407 120 5807	DIODE AK04-V2
R7001	401 012 6903	CARBON 10K JA 1/4W
R7002	401 012 6903	CARBON 10K JA 1/4W
R7003	401 012 6903	CARBON 10K JA 1/4W
R7004	401 012 6903	CARBON 10K JA 1/4W
R7007	401 012 6903	CARBON 10K JA 1/4W
R7018	401 012 5609	CARBON 1K JA 1/4W
R7019	401 012 5609	CARBON 1K JA 1/4W
RB701	613 079 5885	R-NETWORK,10KX5
OR	613 017 2860	RESISTOR PACK

RF CONVERTER CIRCUIT(CV-B)

LOCATION	PARTS NO.	DESCRIPTION
C6601	403 134 8100	ELECT 100U M 6.3V
C6602	403 134 8100	ELECT 100U M 6.3V
L6601	613 014 8667	HF CHOKE 15UH K
OR	613 015 6631	COIL,INDUCTOR 15UHK
L6602	613 014 0739	COIL,INDUCTOR 1.0UHM
OR	613 014 4256	HF CHOKE 1.0UH K
R6603	401 016 3700	CARBON 2.2K JA 1/4W
R6604	401 019 1802	CARBON 3.9K JA 1/4W

COMPL PCB,PW-1

COMPL.NO. 613 124 7307

LOCATION	PARTS NO.	DESCRIPTION
C5001	404 044 7900	MT-POLYEST 0.22U M 250V
C5002 ⚠	404 044 7009	MT-POLYEST 0.068U M 250V
C5003	404 052 4304	ELECT 62U M 400V
OR	404 053 6505	ELECT 56U M 400V
C5004	403 183 3309	MT-POLYEST 0.047U M 630V
C5005	403 137 5007	CERAMIC 100P K 1K
OR	403 137 5007	CERAMIC 100P K 1K
C5007	403 222 1808	ELECT 1U M 400V
C5008	403 094 0800	OS-SOLID 2.2U M 16V
C5009	403 061 7702	POLYESTER 4700P J 50V
C5010	403 018 6208	CERAMIC 220P J 50V
OR	403 214 9706	CERAMIC 220P J 50V
C5011	403 001 5003	CERAMIC 2200P K 16V
C5012	403 058 9504	POLYESTER 0.018U J 50V
C5013	403 058 9504	POLYESTER 0.018U J 50V
C5020 ⚠	404 034 7507	CERAMIC 2200P M 400V
OR ⚠	404 032 6304	CERAMIC 2200P M 400V
C5021 ⚠	404 034 7507	CERAMIC 2200P M 400V
OR ⚠	404 032 6304	CERAMIC 2200P M 400V
C5022	404 034 7507	CERAMIC 2200P M 400V
OR	404 032 6304	CERAMIC 2200P M 400V
C5023	404 034 7507	CERAMIC 2200P M 400V
OR	404 032 6304	CERAMIC 2200P M 400V
C5101	403 205 2105	ELECT 1200U M 16V
C5102	403 160 7207	ELECT 470U M 16V
C5104	403 205 2105	ELECT 1200U M 16V
C5105	403 147 9507	ELECT 470U M 6.3V
OR	403 160 2905	ELECT 470U M 6.3V
C5106	403 121 6607	ELECT 47U M 50V
OR	403 154 8302	ELECT 47U M 50V
C5107	403 121 6607	ELECT 47U M 50V
OR	403 154 8302	ELECT 47U M 50V
C5108	403 160 2400	ELECT 330U M 6.3V
OR	403 155 5508	ELECT 330U M 6.3V
C5109	403 004 0500	CERAMIC 0.047U K 25V
C5110	403 168 6103	MT-POLYEST 0.1U J 50V
C5111	403 125 5606	ELECT 100U M 16V
C5114	403 001 1906	CERAMIC 0.01U M 16V
C5115	403 135 4002	ELECT 47U M 6.3V
CN501	613 120 7912	CONNECTOR,INLET
D5001	407 010 9403	DIODE S1WBA60
OR	407 134 8900	DIODE DBC10G

LOCATION	PARTS NO.	DESCRIPTION
D5003	407 091 6704	DIODE AP01C-V0
D5004	407 078 2705	DIODE 1SS244-T-77
D5005	407 078 2705	DIODE 1SS244-T-77
D5006	407 050 9302	ZENER DIODE GZB18C
D5007	407 078 2705	DIODE 1SS244-T-77
D5008	407 078 2705	DIODE 1SS244-T-77
D5009	407 006 0902	DIODE ERB12-02U14ATP
OR	407 148 4103	DIODE ERB12-02UA
D5010	407 136 8809	DIODE ERA15-04A-V5
OR	407 004 9808	DIODE DSK10E-BT
D5011	407 097 0300	PHOTO COUPLE PC113A
D5101	407 100 9108	DIODE DLE30C-KC9
D5104	407 100 6909	DIODE AG01-V2
OR	407 091 6902	DIODE ERA38-04-V5
D5105	407 078 2705	DIODE 1SS244-T-77
D5106	407 078 2705	DIODE 1SS244-T-77
D5107	407 100 6909	DIODE AG01-V2
OR	407 091 6902	DIODE ERA38-04-V5
D5108	407 004 9709	DIODE DSK10C-BT
OR	407 005 8701	DIODE ERA15-02-V5
D5109	407 099 5105	ZENER DIODE MTZJ4.7B-T-77
D5110	407 012 4406	DIODE 1SS133-T-77
D5111	407 099 5204	ZENER DIODE MTZJ5.1B-T-77
D5113	407 051 4801	ZENER DIODE GZS2.0X-BT
OR	407 125 9008	ZENER DIODE MTZJ2.0A-T-77
D5114	407 099 6508	ZENER DIODE MTZJ12A-T-77
D5115	407 099 6508	ZENER DIODE MTZJ12A-T-77
D5120	407 142 1108	DIODE RK44 LF-M1
F5001 ⚠	423 006 1305	FUSE 250V 2A
IC511	409 067 7203	IC L5431-AA
IC512	409 234 7005	IC SI-3120CA
L5002 ⚠	613 013 1362	LF CHOKE
L5101	613 017 0354	CORE
L5102	613 110 4198	COIL,INDUCTOR 10UH K
PR511 ⚠	613 000 2327	CIRCUIT PROTECTOR
Q5001	405 103 7909	TR 2SK1460-YA
Q5002	405 017 9600	TR 2SC3330-T-AC
Q5003	405 105 0700	TR 2SB1050-R
Q5101	405 088 9103	TR 2SA1703-S-AN
OR	405 108 6907	TR 2SB1322A-R(TA)
OR	405 108 7003	TR 2SB1322A-S(TA)
Q5102	405 107 4102	TR 2SD1994-R (TA)
OR	405 107 4201	TR 2SD1994-S (TA)
OR	405 089 2103	TR 2SC4483-S-AN
Q5103	405 035 6902	TR 2SC3851-O
OR	405 035 7008	TR 2SC3851-Y
Q5104	405 019 1909	TR 2SC536-E-NP-AA
OR	405 019 2708	TR 2SC536-F-NP-AA
R5001	401 001 8000	SOLID 2.7M MA 1/2W
OR	401 001 7904	SOLID 2.7M KA 1/2W
R5002	401 080 0605	WIRE WOUND 2.2 KA 2W
R5003	401 069 4402	OXIDE-MT 68K JA 2W
R5004	401 069 4402	OXIDE-MT 68K JA 2W
R5005	401 090 4709	OXIDE-MT 220K JA 1W
R5006	401 090 1104	CARBON 1M JA 1/2W
R5007	401 009 5001	CARBON 33 JA 1/2W
R5008	401 007 0305	CARBON 100 JA 1/2W
R5009	401 020 2805	CARBON 47K JA 1/4W
R5010	401 012 5609	CARBON 1K JA 1/4W
R5011	401 011 8809	CARBON 1 JA 1/4W
R5012	401 016 1409	CARBON 22 JA 1/4W
R5013	401 012 6903	CARBON 10K JA 1/4W
R5014	401 017 2702	CARBON 27K JA 1/4W

LOCATION	PARTS NO.	DESCRIPTION
R5015	401 057 5107	OXIDE-MT 0.47 JA 1W
R5101 ⚠	402 004 0909	FUSIBLE RES 2.7 JA 1/4W
R5102 ⚠	402 004 1302	FUSIBLE RES 220 JA 1/4W
R5103	401 016 3700	CARBON 2.2K JA 1/4W
R5104	401 015 2605	CARBON 1.8K JA 1/4W
R5105	401 107 6009	MT-FILM 1.6K FD 1/4W
R5106	401 107 1707	MT-FILM 2.2K FD 1/4W
R5107	401 012 4404	CARBON 100 JA 1/4W
R5108	401 014 5102	CARBON 15K JA 1/4W
R5109	401 021 8905	CARBON 6.2K JA 1/4W
R5110	401 016 3700	CARBON 2.2K JA 1/4W
R5111	401 012 5609	CARBON 1K JA 1/4W
R5112	401 016 3700	CARBON 2.2K JA 1/4W
R5113	401 016 3700	CARBON 2.2K JA 1/4W
R5114	401 011 5709	CARBON 820 JA 1/2W
R5115	401 011 5709	CARBON 820 JA 1/2W
R5117	401 013 6308	CARBON 12K JA 1/4W
T5001 ⚠	613 126 5172	TRANS,SW
OR ⚠	613 128 3824	TRANS,SW

IF PACK

COMPL.NO.	613 122 1062	86-4070
C6101	403 028 4409	CERAMIC 56P J 50V
C6102	403 012 7003	CERAMIC 15P J 50V
C6103	403 026 3008	CERAMIC 47P J 50V
C6104	403 069 9500	CERAMIC 0.01U Z 50V
C6105	403 069 9500	CERAMIC 0.01U Z 50V
C6106	403 069 9500	CERAMIC 0.01U Z 50V
C6107	403 069 9500	CERAMIC 0.01U Z 50V
C6109	403 042 3006	ELECT 100U M 16V
C6110	403 069 9500	CERAMIC 0.01U Z 50V
C6111	403 068 0409	CERAMIC 0.1U Z 25V
C6112	403 069 1702	CERAMIC 1000P K 50V
C6113	403 050 0509	ELECT 2.2U M 50V
C6114	403 069 9500	CERAMIC 0.01U Z 50V
C6115	403 109 9200	CERAMIC 27P J 50V
C6116	403 069 9500	CERAMIC 0.01U Z 50V
C6117	403 048 4809	ELECT 0.33U M 50V
C6118	403 069 9500	CERAMIC 0.01U Z 50V
C6119	403 069 9500	CERAMIC 0.01U Z 50V
C6120	403 068 0409	CERAMIC 0.1U Z 25V
C6123	403 069 9500	CERAMIC 0.01U Z 50V
C6124	403 042 3006	ELECT 100U M 16V
C6125	403 068 0409	CERAMIC 0.1U Z 25V
C6130	403 069 9500	CERAMIC 0.01U Z 50V
C6131	403 069 9500	CERAMIC 0.01U Z 50V
C6132	403 010 8606	CERAMIC 12P J 50V
C6133	403 030 7405	CERAMIC 68P J 50V
C6134	403 068 0409	CERAMIC 0.1U Z 25V
C6136	403 014 3409	CERAMIC 18P J 50V
C6137	403 188 1805	CERAMIC 93P H 50V
C6138	403 048 6902	ELECT 0.47U M 50V
C6139	403 022 8403	CERAMIC 33P J 50V
C6140	403 049 0800	ELECT 1U M 50V
C6141	403 010 8705	CERAMIC 12P J 50V
C6142	403 073 1200	CERAMIC 0.033U K 50V
C6144	403 047 0604	ELECT 4.7U M 25V
C6152	403 012 6808	CERAMIC 15P J 50V
C6155	403 069 9500	CERAMIC 0.01U Z 50V
D6101	407 053 8906	ZENER DIODE MTZ9.1C
D6102	407 103 5305	DIODE 1SS318-TT51
IC611	409 036 0105	IC M51366SP
J6107	401 035 4108	MT-GLAZE 0.000 ZA 1/8W
J6108	401 035 4108	MT-GLAZE 0.000 ZA 1/8W

LOCATION	PARTS NO.	DESCRIPTION
J6109	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
J6112	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
J6116	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
J6117	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
J6124	401 035 4108	MT-GLAZE 0.000 ZA 1/8W
J6125	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
L6101	613 119 1600	TRANS,IF
L6103	613 014 0746	COIL,INDUCTOR 1.2UHM
L6104	613 014 0807	COIL,INDUCTOR 3.9UHK
L6105	613 014 0913	COIL,INDUCTOR 33UHK
L6106	613 095 2462	TRANS,IF
L6107	613 103 3979	TRANS,IF
L6108	613 014 0845	COIL,INDUCTOR 8.2UHK
L6109	613 088 8396	TRANS,IF
L6110	613 098 6047	COIL,CHOKE 1.5UH
L6111	613 014 0692	COIL,INDUCTOR 0.47UHM
Q6101	405 090 3304	TR 2SC3838K-ADP-T96
Q6102	405 004 3901	TR 2SA608-E-NP
Q6103	405 015 8407	TR 2SC2812-L5-TB
Q6105	405 015 8407	TR 2SC2812-L5-TB
Q6106	405 015 8407	TR 2SC2812-L5-TB
R6101	402 023 4506	FUSIBLE RES 27 JA 1/2W
R6103	401 038 7700	MT-GLAZE 5.6K JA 1/10W
R6104	401 037 5400	MT-GLAZE 1K JA 1/10W
R6105	401 038 0503	MT-GLAZE 22 JA 1/10W
R6106	401 035 4603	MT-GLAZE 100 JA 1/8W
R6107	401 038 0602	MT-GLAZE 220 JA 1/10W
R6109	401 038 3603	MT-GLAZE 3.3K JA 1/10W
R6110	401 038 6604	MT-GLAZE 470K JA 1/10W
R6111	401 037 9309	MT-GLAZE 18K JA 1/10W
R6112	401 038 6604	MT-GLAZE 470K JA 1/10W
R6113	401 038 7809	MT-GLAZE 56K JA 1/10W
R6114	401 038 9209	MT-GLAZE 6.8K JA 1/10W
R6115	401 038 5102	MT-GLAZE 3.9K JA 1/10W
R6116	401 038 7700	MT-GLAZE 5.6K JA 1/10W
R6117	401 038 0701	MT-GLAZE 2.2K JA 1/10W
R6118	401 038 0701	MT-GLAZE 2.2K JA 1/10W
R6119	401 038 2101	MT-GLAZE 2.7K JA 1/10W
R6120	401 037 7909	MT-GLAZE 1.5K JA 1/10W
R6121	401 039 0601	MT-GLAZE 820K JA 1/10W
R6122	401 039 0403	MT-GLAZE 8.2K JA 1/10W
R6123	401 038 3504	MT-GLAZE 330 JA 1/10W
R6124	401 039 0403	MT-GLAZE 8.2K JA 1/10W
R6125	401 038 3504	MT-GLAZE 330 JA 1/10W
R6126	401 037 5400	MT-GLAZE 1K JA 1/10W
R6127	401 036 8105	MT-GLAZE 470 JA 1/8W
R6128	401 037 1709	MT-GLAZE 68 JA 1/8W
R6129	401 037 5202	MT-GLAZE 100 JA 1/10W
R6130	401 038 3702	MT-GLAZE 33K JA 1/10W
R6136	401 038 6307	MT-GLAZE 470 JA 1/10W
R6137	401 038 7205	MT-GLAZE 5.1K JA 1/10W
R6138	401 037 5202	MT-GLAZE 100 JA 1/10W
R6139	401 037 5400	MT-GLAZE 1K JA 1/10W
R6140	401 037 5608	MT-GLAZE 10K JA 1/10W
R6141	401 037 5608	MT-GLAZE 10K JA 1/10W
R6142	401 037 5400	MT-GLAZE 1K JA 1/10W
R6144	401 037 5202	MT-GLAZE 100 JA 1/10W
R6145	401 039 0304	MT-GLAZE 820 JA 1/10W
R6146	401 038 6208	MT-GLAZE 47 JA 1/10W
R6147	401 038 6505	MT-GLAZE 47K JA 1/10W
R6148	401 037 9200	MT-GLAZE 1.8K JA 1/10W
R6149	401 038 3504	MT-GLAZE 330 JA 1/10W
R6152	401 037 5400	MT-GLAZE 1K JA 1/10W
R6153	401 038 6307	MT-GLAZE 470 JA 1/10W
R6155	401 038 7601	MT-GLAZE 560 JA 1/10W
R6156	401 038 3603	MT-GLAZE 3.3K JA 1/10W

LOCATION	PARTS NO.	DESCRIPTION
R6157	401 038 0701	MT-GLAZE 2.2K JA 1/10W
R6159	401 037 5608	MT-GLAZE 10K JA 1/10W
R6160	401 037 5400	MT-GLAZE 1K JA 1/10W
R6166	401 038 0503	MT-GLAZE 22 JA 1/10W
R6167	401 038 0602	MT-GLAZE 220 JA 1/10W
VR611	613 001 8977	SEMI VR 1KB
X6101	421 002 6607	SAW F TSF1336L
X6102	422 000 8907	SAW F SAF32.9MC70Z
X6104	613 084 1667	FILTER
X6105	613 095 3063	FILTER,6.55MHZ
X6108	613 113 9220	FILTER
X6111	613 095 3070	DISCR,CERAMIC

COMPL PCB,TN-5

COMPL.NO. 613 123 0866

LOCATION	PARTS NO.	DESCRIPTION
C6701	403 069 5601	CERAMIC 0.01U K 50V
C6702	403 038 2006	ELECT 100U M 6.3V
C6703	403 069 5601	CERAMIC 0.01U K 50V
C6704	403 043 9601	ELECT 47U M 16V
C6705	403 041 9405	ELECT 10U M 16V
C6706	403 069 5601	CERAMIC 0.01U K 50V
C6707	403 158 5604	NP-ELECT 0.47U M 50V
C6709	403 017 0900	CERAMIC 20P J 50V
C6710	403 018 0503	CERAMIC 22P J 50V
C6711	403 069 5601	CERAMIC 0.01U K 50V
C6712	403 069 5601	CERAMIC 0.01U K 50V
C6713	403 069 5601	CERAMIC 0.01U K 50V
C6714	403 069 5601	CERAMIC 0.01U K 50V
C6715	403 038 2006	ELECT 100U M 6.3V
C6716	403 069 5601	CERAMIC 0.01U K 50V
C6717	403 048 6902	ELECT 0.47U M 50V
C6718	403 068 0409	CERAMIC 0.1U Z 25V
C6719	403 068 0409	CERAMIC 0.1U Z 25V
C6720	403 048 6902	ELECT 0.47U M 50V
C6721	403 069 5601	CERAMIC 0.01U K 50V
C6722	403 028 4102	CERAMIC 56P J 50V
C6726	403 018 0503	CERAMIC 22P J 50V
C6727	403 018 0503	CERAMIC 22P J 50V
C6728	403 069 5601	CERAMIC 0.01U K 50V
C6729	403 038 9708	ELECT 330U M 6.3V
C6730	403 062 8302	POLYESTER 680P J 50V
C6731	403 039 2609	ELECT 47U M 6.3V
C6732	403 087 3801	STYRENE 1200P J 50V
C6733	403 038 6707	ELECT 220U M 6.3V
C6734	403 087 3801	STYRENE 1200P J 50V
C6735	403 038 2006	ELECT 100U M 6.3V
C6736	403 039 2609	ELECT 47U M 6.3V
C6737	403 062 8302	POLYESTER 680P J 50V
C6738	403 041 9405	ELECT 10U M 16V
C6739	403 041 9405	ELECT 10U M 16V
C6740	403 041 9405	ELECT 10U M 16V
C6741	403 041 9405	ELECT 10U M 16V
C6742	403 041 9405	ELECT 10U M 16V
C6743	403 041 9405	ELECT 10U M 16V
C6744	403 043 9601	ELECT 47U M 16V
C6745	403 046 2104	ELECT 3.3U M 25V
C6746	403 046 2104	ELECT 3.3U M 25V
C6747	403 046 2104	ELECT 3.3U M 25V
C6748	403 046 2104	ELECT 3.3U M 25V
C6750	403 028 1606	CERAMIC 56P J 50V
C6751	403 022 8205	CERAMIC 33P J 50V
D6701	407 003 3609	DIODE DAN202K-T-96
OR	407 004 0706	DIODE DCB015-TB
D6702	407 003 3609	DIODE DAN202K-T-96
OR	407 004 0706	DIODE DCB015-TB

LOCATION	PARTS NO.	DESCRIPTION
D6703	407 003 4507	DIODE DAP202K-T-96
D6704	407 003 3609	DIODE DAN202K-T-96
OR	407 004 0706	DIODE DCB015-TB
D6705	407 003 3609	DIODE DAN202K-T-96
OR	407 004 0706	DIODE DCB015-TB
D6706	407 003 3609	DIODE DAN202K-T-96
OR	407 004 0706	DIODE DCB015-TB
IC671	409 248 5202	IC TB1210F
IC672	409 163 2102	IC TD6710AN
IC673	409 051 3006	IC TC4053BP
IC674	409 018 5203	IC LA6462D
IC675	409 018 5203	IC LA6462D
J6702	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
J6703	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
J6704	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
J6705	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
J6706	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
J6707	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
J6708	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
J6709	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
J6710	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
J6711	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
J6712	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
J6713	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
J6714	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
J6715	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
L6701	613 014 0777	COIL,INDUCTOR 2.2UHM
L6702	613 014 0777	COIL,INDUCTOR 2.2UHM
L6703	613 014 0777	COIL,INDUCTOR 2.2UHM
L6704	613 014 0777	COIL,INDUCTOR 2.2UHM
Q6701	405 060 7509	TR FMG2-T98
Q6702	405 060 7202	TR FMA2-T148
Q6703	405 060 7509	TR FMG2-T98
Q6704	405 015 9701	TR 2SC2814-F4-TB
OR	405 078 0400	TR 2SC2413K-T96-P
Q6705	405 058 5401	TR FMC2-T98
Q6706	405 015 8308	TR 2SC2812-L4-TB
OR	405 015 8407	TR 2SC2812-L5-TB
OR	405 014 4400	TR 2SC2412K-T96-Q
OR	405 014 4509	TR 2SC2412K-T96-R
Q6707	405 060 7509	TR FMG2-T98
R6701	401 037 5608	MT-GLAZE 10K JA 1/10W
R6702	401 037 5608	MT-GLAZE 10K JA 1/10W
R6703	401 038 5102	MT-GLAZE 3.9K JA 1/10W
R6704	401 037 5400	MT-GLAZE 1K JA 1/10W
R6705	401 037 5608	MT-GLAZE 10K JA 1/10W
R6706	401 038 0701	MT-GLAZE 2.2K JA 1/10W
R6707	401 037 5202	MT-GLAZE 100 JA 1/10W
R6708	401 038 2002	MT-GLAZE 270 JA 1/10W
R6709	401 039 0205	MT-GLAZE 82 JA 1/10W
R6710	401 038 3702	MT-GLAZE 33K JA 1/10W
R6711	401 038 9001	MT-GLAZE 680 JA 1/10W
R6712	401 038 0602	MT-GLAZE 220 JA 1/10W
R6713	401 038 9001	MT-GLAZE 680 JA 1/10W
R6714	401 037 5608	MT-GLAZE 10K JA 1/10W
R6715	401 038 0909	MT-GLAZE 220K JA 1/10W
R6716	401 038 5300	MT-GLAZE 39K JA 1/10W
R6717	401 038 0107	MT-GLAZE 2K JA 1/10W
R6718	401 038 9308	MT-GLAZE 68K JA 1/10W
R6719	401 038 2101	MT-GLAZE 2.7K JA 1/10W
R6720	401 038 6505	MT-GLAZE 47K JA 1/10W
R6721	401 038 0800	MT-GLAZE 22K JA 1/10W
R6722	401 038 0800	MT-GLAZE 22K JA 1/10W
R6723	401 037 5608	MT-GLAZE 10K JA 1/10W

LOCATION	PARTS NO.	DESCRIPTION
R6724	401 037 5608	MT-GLAZE 10K JA 1/10W
R6725	401 038 6406	MT-GLAZE 4.7K JA 1/10W
R6726	401 038 6406	MT-GLAZE 4.7K JA 1/10W
R6727	401 037 5400	MT-GLAZE 1K JA 1/10W
R6728	401 038 2200	MT-GLAZE 27K JA 1/10W
R6729	401 038 7700	MT-GLAZE 5.6K JA 1/10W
R6730	401 037 5400	MT-GLAZE 1K JA 1/10W
R6731	401 037 5400	MT-GLAZE 1K JA 1/10W
R6732	401 038 2200	MT-GLAZE 27K JA 1/10W
R6733	401 038 7700	MT-GLAZE 5.6K JA 1/10W
R6734	401 037 5400	MT-GLAZE 1K JA 1/10W
R6736	401 038 6505	MT-GLAZE 47K JA 1/10W
R6737	401 037 5608	MT-GLAZE 10K JA 1/10W
R6738	401 037 5608	MT-GLAZE 10K JA 1/10W
R6740	401 038 6109	MT-GLAZE 430K JA 1/10W
X6701	613 123 4154	OSC,CRYSTAL 11.648MHZ
X6702	613 084 3227	OSC CRYSTAL,6.552MHZ
X6703	613 084 3258	RESONATOR,CERAMIC 16.93M
XF671	613 084 3173	FILTER,6.552MHZ
XF672	613 123 1481	FILTER,14KHZ

COMPL PCB,TN-7

COMPL.NO. 613 127 8035

LOCATION	PARTS NO.	DESCRIPTION
B6901	405 018 1900	TR 2SC3395-TB
OR	405 029 3504	TR DTC144EK-T96
C6901	403 068 0409	CERAMIC 0.1U Z 25V
OR	403 116 2508	CERAMIC 0.1U Z 25V
C6902	403 189 2405	ELECT 10U M 16V
C6903	403 072 3403	CERAMIC 0.022U Z 50V
C6904	403 193 8400	ELECT 0.22U M 50V
C6921	403 068 0409	CERAMIC 0.1U Z 25V
OR	403 116 2508	CERAMIC 0.1U Z 25V
D6901	407 004 0706	DIODE DCB015-TB
OR	407 003 3609	DIODE DAN202K-T-96
D6902	407 003 5108	DIODE DA204K-T96
J6901	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
Q6901	405 015 8308	TR 2SC2812-L4-TB
OR	405 015 8407	TR 2SC2812-L5-TB
OR	405 014 4400	TR 2SC2412K-T96-Q
OR	405 014 4509	TR 2SC2412K-T96-R
OR	405 015 8704	TR 2SC2812-L6-TB
Q6902	405 030 7201	TR 2SA1338-4-TB
OR	405 030 7300	TR 2SA1338-5-TB
Q6903	405 015 8308	TR 2SC2812-L4-TB
OR	405 015 8407	TR 2SC2812-L5-TB
OR	405 014 4400	TR 2SC2412K-T96-Q
OR	405 014 4509	TR 2SC2412K-T96-R
OR	405 015 8704	TR 2SC2812-L6-TB
R6901	401 037 5400	MT-GLAZE 1K JA 1/10W
R6902	401 038 3504	MT-GLAZE 330 JA 1/10W
R6903	401 038 8509	MT-GLAZE 620 JA 1/10W
R6904	401 037 5608	MT-GLAZE 10K JA 1/10W
R6905	401 038 3801	MT-GLAZE 330K JA 1/10W
R6906	401 037 5608	MT-GLAZE 10K JA 1/10W
R6907	401 038 3603	MT-GLAZE 3.3K JA 1/10W
R6908	401 039 0205	MT-GLAZE 82 JA 1/10W
R6909	401 037 5400	MT-GLAZE 1K JA 1/10W
R6910	401 038 7106	MT-GLAZE 510 JA 1/10W
R6911	401 038 7700	MT-GLAZE 5.6K JA 1/10W
R6912	401 038 5102	MT-GLAZE 3.9K JA 1/10W

LOCATION	PARTS NO.	DESCRIPTION
T6901	613 109 0958	TRANS,IF
OR	613 109 0965	TRANS,IF
COMPL PCB,TM-1		
COMPL.NO.	613 127 3962	
	613 108 4230	HOLDER
A7101	613 113 2672	FLUORESCENT TUBE
C7101	403 021 7308	CERAMIC 3.3P K 50V
C7102	403 014 2501	CERAMIC 18P J 50V
C7103	403 017 0108	CERAMIC 20P J 50V
C7104	403 001 1906	CERAMIC 0.01U M 16V
C7105	403 139 1601	ELECT 22U M 16V
C7106	403 001 1906	CERAMIC 0.01U M 16V
C7107	403 001 1906	CERAMIC 0.01U M 16V
C7108	403 139 1502	ELECT 10U M 16V
C7111	403 121 9509	CERAMIC 0.1U Z 50V
C7113	403 139 1502	ELECT 10U M 16V
D7103	407 007 9904	DIODE GMA01-BT
OR	407 012 4406	DIODE 1SS133-T-77
D7104	407 007 9904	DIODE GMA01-BT
OR	407 012 4406	DIODE 1SS133-T-77
D7106	407 007 9904	DIODE GMA01-BT
OR	407 012 4406	DIODE 1SS133-T-77
D7107	407 007 9904	DIODE GMA01-BT
OR	407 012 4406	DIODE 1SS133-T-77
D7108	407 007 9904	DIODE GMA01-BT
OR	407 012 4406	DIODE 1SS133-T-77
D7110	407 007 9904	DIODE GMA01-BT
OR	407 012 4406	DIODE 1SS133-T-77
D7116	407 007 9904	DIODE GMA01-BT
OR	407 012 4406	DIODE 1SS133-T-77
D7118	407 007 9904	DIODE GMA01-BT
OR	407 012 4406	DIODE 1SS133-T-77
D7123	407 007 9904	DIODE GMA01-BT
OR	407 012 4406	DIODE 1SS133-T-77
D7125	407 007 9904	DIODE GMA01-BT
OR	407 012 4406	DIODE 1SS133-T-77
D7129	407 007 9904	DIODE GMA01-BT
OR	407 012 4406	DIODE 1SS133-T-77
IC711	409 251 0805	IC M50959-439SP
IC712	409 032 3308	IC MN1280-L
OR	409 243 4101	IC MN1380-L
Q7101	405 063 9609	TR DTA114EL-TL2
R7101	401 012 9201	CARBON 1M JA 1/4W
R7102	401 110 6201	CARBON 10M JA 1/4W
R7103	401 018 5702	CARBON 330K JA 1/4W
R7104	401 012 5609	CARBON 1K JA 1/4W
R7106	401 012 5609	CARBON 1K JA 1/4W
R7108	401 012 5609	CARBON 1K JA 1/4W
R7110	401 012 5609	CARBON 1K JA 1/4W
R7116	401 016 4707	CARBON 22K JA 1/4W
R7117	401 012 6903	CARBON 10K JA 1/4W
R7122	401 012 5609	CARBON 1K JA 1/4W
R7123	401 012 5609	CARBON 1K JA 1/4W
R7124	401 014 4006	CARBON 1.5K JA 1/4W
RB711	613 079 5878	R-NETWORK,10KX4
OR	613 017 2853	RESISTOR PACK 10K X4 J
S7101	613 077 4354	PUSH SWITCH,REW
OR	613 079 4154	SW,PUSH,REW
OR	613 092 0744	SW,PUSH,REW

LOCATION	PARTS NO.	DESCRIPTION
S7101	613 092 0768	SW,PUSH,REW
S7102	613 006 3649	PUSH SWITCH,PLAY
OR	613 079 4130	SW,PUSH,PLAY
OR	613 092 1734	SW,PUSH,PLAY
OR	613 092 0751	SW,PUSH,PLAY
S7103	613 077 4354	PUSH SWITCH,REC
OR	613 079 4154	SW,PUSH,REC
OR	613 092 0744	SW,PUSH,REC
OR	613 092 0768	SW,PUSH,REC
S7105	613 077 4354	PUSH SWITCH,FF
OR	613 079 4154	SW,PUSH,FF
OR	613 092 0744	SW,PUSH,FF
OR	613 092 0768	SW,PUSH,FF
S7106	613 006 3649	PUSH SWITCH,STOP
OR	613 079 4130	SW,PUSH,STOP
OR	613 092 1734	SW,PUSH,STOP
OR	613 092 0751	SW,PUSH,STOP
S7107	613 077 4354	PUSH SWITCH,PAUSE
OR	613 079 4154	SW,PUSH,PAUSE
OR	613 092 0744	SW,PUSH,PAUSE
OR	613 092 0768	SW,PUSH,PAUSE
S7115	613 077 4354	PUSH SWITCH,PRESET
OR	613 079 4154	SW,PUSH,PRESET
OR	613 092 0744	SW,PUSH,PRESET
OR	613 092 0768	SW,PUSH,PRESET
S7117	613 077 4354	PUSH SWITCH,CH UP
OR	613 079 4154	SW,PUSH,CH UP
OR	613 092 0744	SW,PUSH,CH UP
OR	613 092 0768	SW,PUSH,CH UP
S7118	613 077 4354	PUSH SWITCH,CH DOWN
OR	613 079 4154	SW,PUSH,CH DOWN
OR	613 092 0744	SW,PUSH,CH DOWN
OR	613 092 0768	SW,PUSH,CH DOWN
S7119	613 077 4354	PUSH SWITCH,OK
OR	613 079 4154	SW,PUSH,OK
OR	613 092 0744	SW,PUSH,OK
OR	613 092 0768	SW,PUSH,OK
S7121	613 077 4354	PUSH SWITCH,TR+/FT+
OR	613 079 4154	SW,PUSH,TR+/FT+
OR	613 092 0744	SW,PUSH,TR+/FT+
OR	613 092 0768	SW,PUSH,TR+/FT+
S7122	613 077 4354	PUSH SWITCH,TR-/FT-
OR	613 079 4154	SW,PUSH,TR-/FT-
OR	613 092 0744	SW,PUSH,TR-/FT-
OR	613 092 0768	SW,PUSH,TR-/FT-
S7130	613 077 4354	PUSH SWITCH,SUMMER TIME
OR	613 079 4154	SW,PUSH,SUMMER TIME
OR	613 092 0744	SW,PUSH,SUMMER TIME
OR	613 092 0768	SW,PUSH,SUMMER TIME
S7137	613 077 4354	PUSH SWITCH,AC
OR	613 079 4154	SW,PUSH,AC
OR	613 092 0744	SW,PUSH,AC
OR	613 092 0768	SW,PUSH,AC
X7101	613 122 1444	RESONATOR,CERAMIC 6.0MHZ
OR	613 124 2135	RESONATOR,CERAMIC 6MHZ
OR	613 089 4069	RESONATOR,CERAMIC 6MHZ
OR	613 108 9570	RESONATOR,CERAMIC 6MHZ
X7102	613 109 0972	OSC,CRYSTAL 32KHZ
COMPL PCB,TM-6		
COMPL.NO.	613 130 0613	
B7601	405 018 2402	TR 2SC3398-TB
C7601	403 155 2804	DL-ELECT 0.047F Z 5.5V
C7602	403 041 2703	ELECT 47U M 10V
C7603	403 039 3507	ELECT 470U M 6.3V
C7604	403 069 9500	CERAMIC 0.01U Z 50V

LOCATION	PARTS NO.	DESCRIPTION
C7605	403 069 9500	CERAMIC 0.01U Z 50V
C7606	403 069 9500	CERAMIC 0.01U Z 50V
C7609	403 041 9405	ELECT 10U M 16V
C7610	403 069 9500	CERAMIC 0.01U Z 50V
C7611	403 069 9500	CERAMIC 0.01U Z 50V
C7625	403 041 2109	ELECT 47U M 10V
C7640	403 012 6808	CERAMIC 15P J 50V
C7642	403 069 9500	CERAMIC 0.01U Z 50V
C7643	403 069 9500	CERAMIC 0.01U Z 50V
C7644	403 049 0800	ELECT 1U M 50V
C7646	403 043 9106	ELECT 47U M 16V
C7651	403 161 6902	NP-ELECT 2.2U M 50V
C7652	403 012 6907	CERAMIC 15P J 50V
C7653	403 069 1702	CERAMIC 1000P K 50V
C7654	403 026 7600	CERAMIC 470P J 50V
C7655	403 072 1607	CERAMIC 0.022U K 50V
C7656	403 020 5602	CERAMIC 270P J 50V
C7657	403 009 5807	CERAMIC 100P J 50V
C7658	403 012 6907	CERAMIC 15P J 50V
C7659	403 020 0508	CERAMIC 27P J 50V
C7660	403 067 7300	MT-COMPO 0.33U J 50V
C7661	403 068 3202	CERAMIC 0.033U K 25V
C7662	403 049 0800	ELECT 1U M 50V
C7663	403 041 9405	ELECT 10U M 16V
C7664	403 073 1200	CERAMIC 0.033U K 50V
C7665	403 014 3508	CERAMIC 18P J 50V
C7666	403 018 0602	CERAMIC 22P J 50V
C7667	403 018 7502	CERAMIC 220P J 50V
C7668	403 130 4106	CERAMIC 0.068U K 25V
OR	403 228 7408	CERAMIC 0.068U K 25V
C7669	403 043 9601	ELECT 47U M 16V
C7670	403 069 9500	CERAMIC 0.01U Z 50V
C7671	403 069 9500	CERAMIC 0.01U Z 50V
C7672	403 041 2703	ELECT 47U M 10V
C7673	403 069 9500	CERAMIC 0.01U Z 50V
C7674	403 042 8308	ELECT 22U M 16V
C7675	403 042 8308	ELECT 22U M 16V
C7676	403 042 8308	ELECT 22U M 16V
C7677	403 072 1607	CERAMIC 0.022U K 50V
C7678	403 026 2902	CERAMIC 47P J 50V
C7679	403 069 1702	CERAMIC 1000P K 50V
C7680	403 049 0800	ELECT 1U M 50V
C7681	403 068 0409	CERAMIC 0.1U Z 25V
C7682	403 093 8302	OS-SOLID 47U M 10V
C7683	403 069 9500	CERAMIC 0.01U Z 50V
C7684	403 068 0409	CERAMIC 0.1U Z 25V
C7685	403 049 0800	ELECT 1U M 50V
C7686	403 069 5601	CERAMIC 0.01U K 50V
C7687	403 069 1702	CERAMIC 1000P K 50V
C7688	403 049 0800	ELECT 1U M 50V
C7689	403 086 0108	NP-ELECT 4.7U M 25V
C7691	403 049 0800	ELECT 1U M 50V
C7692	403 042 3006	ELECT 100U M 16V
C7693	403 042 3006	ELECT 100U M 16V
C7694	403 042 3006	ELECT 100U M 16V
C7695	403 068 0409	CERAMIC 0.1U Z 25V
C7696	403 074 3104	CERAMIC 0.047U Z 50V
C7698	403 073 9107	CERAMIC 4700P K 50V
C7699	403 206 8601	CERAMIC 0.33U Z 16V
CT761	613 002 6545	TRIMMER
D7602	407 120 5807	DIODE AK04-V2
D7603	407 004 0201	DIODE DCA015-TB
OR	407 003 4507	DIODE DAP202K-T-96
D7657	407 004 0201	DIODE DCA015-TB
OR	407 003 4507	DIODE DAP202K-T-96
D7659	407 004 0201	DIODE DCA015-TB
OR	407 003 4507	DIODE DAP202K-T-96

LOCATION	PARTS NO.	DESCRIPTION
D7660	407 004 0201	DIODE DCA015-TB
OR	407 003 4507	DIODE DAP202K-T-96
IC761	409 120 6402	IC P8031AH
IC762	410 126 0905	IC TMS27PC512-20NL.S17
IC763	409 194 6100	IC SRM2264LC-10
OR	409 194 6209	IC SRM2264LC-12
OR	409 225 6000	IC LH5164N-10L
OR	409 239 7406	IC LH5160N-10TL
OR	409 240 1004	IC LH5160N-10L
IC764	409 052 6907	IC TC74HC373P
OR	409 067 5506	IC LC74HC373
IC765	409 032 3704	IC MN1280-R
OR	409 243 4200	IC MN1380-R
IC766	409 184 0507	IC SDA5231
OR	409 107 8108	IC SAA5231
OR	409 265 0808	IC SDA5231-2
IC767	409 196 0304	IC SDA5243
OR	409 211 2603	IC SAA5243P/E
OR	409 262 4106	IC SDA5243-2
IC768	409 194 6100	IC SRM2264LC-10
OR	409 194 6209	IC SRM2264LC-12
OR	409 225 6000	IC LH5164N-10L
OR	409 239 7406	IC LH5160N-10TL
OR	409 240 1004	IC LH5160N-10L
IC769	409 221 4000	IC MC1378P
L7601	613 094 3279	RF CHOKE 10UH K
L7602	613 094 3279	RF CHOKE 10UH K
L7604	613 094 3279	RF CHOKE 10UH K
L7605	613 013 7807	HF CHOKE 2.2UH
L7606	613 017 0316	CORE
L7607	613 094 3279	RF CHOKE 10UH K
L7651	613 014 0876	COIL,INDUCTOR 15UHK
Q7601	405 015 8407	TR 2SC2812-L5-TB
OR	405 015 8704	TR 2SC2812-L6-TB
Q7602	405 015 8407	TR 2SC2812-L5-TB
OR	405 015 8704	TR 2SC2812-L6-TB
Q7651	405 002 6508	TR 2SA1179-M5-TB
OR	405 002 6706	TR 2SA1179-M6-TB
Q7653	405 015 8407	TR 2SC2812-L5-TB
OR	405 015 8704	TR 2SC2812-L6-TB
Q7654	405 002 6508	TR 2SA1179-M5-TB
OR	405 002 6706	TR 2SA1179-M6-TB
Q7655	405 002 6508	TR 2SA1179-M5-TB
OR	405 002 6706	TR 2SA1179-M6-TB
Q7656	405 002 6508	TR 2SA1179-M5-TB
OR	405 002 6706	TR 2SA1179-M6-TB
Q7657	405 015 8407	TR 2SC2812-L5-TB
OR	405 015 8704	TR 2SC2812-L6-TB
Q7658	405 002 6508	TR 2SA1179-M5-TB
OR	405 002 6706	TR 2SA1179-M6-TB
Q7659	405 002 6508	TR 2SA1179-M5-TB
OR	405 002 6706	TR 2SA1179-M6-TB
Q7660	405 015 8407	TR 2SC2812-L5-TB
OR	405 015 8704	TR 2SC2812-L6-TB
R7601	401 037 5400	MT-GLAZE 1K JA 1/10W
R7602	401 037 5400	MT-GLAZE 1K JA 1/10W
R7603	401 037 5400	MT-GLAZE 1K JA 1/10W
R7604	401 038 0602	MT-GLAZE 220 JA 1/10W
R7605	401 038 3702	MT-GLAZE 33K JA 1/10W
R7606	401 038 3702	MT-GLAZE 33K JA 1/10W
R7607	401 037 5608	MT-GLAZE 10K JA 1/10W
R7610	401 038 7809	MT-GLAZE 56K JA 1/10W
R7611	401 038 7809	MT-GLAZE 56K JA 1/10W
R7612	401 037 5806	MT-GLAZE 1M JA 1/10W
R7614	401 037 5202	MT-GLAZE 100 JA 1/10W

LOCATION	PARTS NO.	DESCRIPTION
R7615	401 037 5608	MT-GLAZE 10K JA 1/10W
R7616	401 037 5608	MT-GLAZE 10K JA 1/10W
R7617	401 037 5608	MT-GLAZE 10K JA 1/10W
R7618	401 037 5608	MT-GLAZE 10K JA 1/10W
R7619	401 038 9506	MT-GLAZE 75 JA 1/10W
R7620	401 038 3603	MT-GLAZE 3.3K JA 1/10W
R7621	401 038 6406	MT-GLAZE 4.7K JA 1/10W
R7623	401 038 2101	MT-GLAZE 2.7K JA 1/10W
R7624	401 037 9309	MT-GLAZE 18K JA 1/10W
R7625	401 038 6604	MT-GLAZE 470K JA 1/10W
R7626	401 037 5608	MT-GLAZE 10K JA 1/10W
R7627	401 037 5806	MT-GLAZE 1M JA 1/10W
R7629	401 038 6406	MT-GLAZE 4.7K JA 1/10W
R7631	401 038 6406	MT-GLAZE 4.7K JA 1/10W
R7632	401 038 0701	MT-GLAZE 2.2K JA 1/10W
R7633	401 037 9200	MT-GLAZE 1.8K JA 1/10W
R7634	401 038 2200	MT-GLAZE 27K JA 1/10W
R7635	401 037 8005	MT-GLAZE 15K JA 1/10W
R7636	401 037 9200	MT-GLAZE 1.8K JA 1/10W
R7637	401 038 9001	MT-GLAZE 680 JA 1/10W
R7638	401 037 5608	MT-GLAZE 10K JA 1/10W
R7640	401 038 9506	MT-GLAZE 75 JA 1/10W
R7641	401 037 5806	MT-GLAZE 1M JA 1/10W
R7642	401 038 0701	MT-GLAZE 2.2K JA 1/10W
R7643	401 038 5904	MT-GLAZE 4.3K JA 1/10W
R7644	401 037 5608	MT-GLAZE 10K JA 1/10W
R7645	401 037 5202	MT-GLAZE 100 JA 1/10W
R7646	401 037 9200	MT-GLAZE 1.8K JA 1/10W
R7649	401 038 6208	MT-GLAZE 47 JA 1/10W
R7650	401 037 5608	MT-GLAZE 10K JA 1/10W
R7651	401 037 6704	MT-GLAZE 1.2K JA 1/10W
R7652	401 038 3603	MT-GLAZE 3.3K JA 1/10W
R7653	401 038 7601	MT-GLAZE 560 JA 1/10W
R7654	401 038 3504	MT-GLAZE 330 JA 1/10W
R7655	401 038 7809	MT-GLAZE 56K JA 1/10W
R7659	401 037 5400	MT-GLAZE 1K JA 1/10W
R7660	401 037 5400	MT-GLAZE 1K JA 1/10W
R7661	401 037 5608	MT-GLAZE 10K JA 1/10W
R7662	401 038 2002	MT-GLAZE 270 JA 1/10W
R7666	401 037 5202	MT-GLAZE 100 JA 1/10W
R7668	401 037 9200	MT-GLAZE 1.8K JA 1/10W
R7669	401 038 2002	MT-GLAZE 270 JA 1/10W
R7670	401 038 2002	MT-GLAZE 270 JA 1/10W
R7671	401 038 2002	MT-GLAZE 270 JA 1/10W
R7672	401 038 9001	MT-GLAZE 680 JA 1/10W
R7673	401 037 5400	MT-GLAZE 1K JA 1/10W
R7674	401 038 4006	MT-GLAZE 360 JA 1/10W
R7675	401 038 8509	MT-GLAZE 620 JA 1/10W
R7676	401 037 9101	MT-GLAZE 180 JA 1/10W
R7677	401 038 9506	MT-GLAZE 75 JA 1/10W
R7678	401 038 9001	MT-GLAZE 680 JA 1/10W
R7679	401 037 5400	MT-GLAZE 1K JA 1/10W
R7680	401 038 4006	MT-GLAZE 360 JA 1/10W
R7681	401 038 8509	MT-GLAZE 620 JA 1/10W
R7682	401 037 9101	MT-GLAZE 180 JA 1/10W
R7683	401 038 9506	MT-GLAZE 75 JA 1/10W
R7692	401 037 5608	MT-GLAZE 10K JA 1/10W
R7693	401 038 9001	MT-GLAZE 680 JA 1/10W
R7694	401 037 5400	MT-GLAZE 1K JA 1/10W
R7695	401 038 4006	MT-GLAZE 360 JA 1/10W
R7696	401 038 8509	MT-GLAZE 620 JA 1/10W
R7697	401 037 9101	MT-GLAZE 180 JA 1/10W
R7698	401 038 9506	MT-GLAZE 75 JA 1/10W
R7699	401 037 9101	MT-GLAZE 180 JA 1/10W
X7601	613 099 3083	RESONATOR,CERAMIC 12MHZ
X7651	613 098 5088	OSC,CRYSTAL 13.875MHZ
X7652	613 099 3090	RESONATOR,CERAMIC 6MHZ
X7653	613 119 1624	OSC,CRYSTAL 17.734475MHZ

LOCATION	PARTS NO.	DESCRIPTION
X7654	613 118 1632	RESONATOR,CERAMIC 4MHZ
XF761	613 125 5654	FILTER,4.43MHZ
XF762	613 103 3924	FILTER,3MHZ
XF763	613 086 4475	FILTER
XF764	613 086 4475	FILTER
XF765	613 086 4505	FILTER

COMPL PCB,TB-1

COMPL.NO. 613 125 9751

LOCATION	PARTS NO.	DESCRIPTION
C8502	403 071 6207	CERAMIC 220P K 50V
C8503	403 071 6207	CERAMIC 220P K 50V
C8504	403 071 6207	CERAMIC 220P K 50V
C8505	403 191 8600	ELECT 4.7U M 25V
C8506	403 069 1207	CERAMIC 1000P K 50V
C8508	403 069 1207	CERAMIC 1000P K 50V
C8509	403 191 8600	ELECT 4.7U M 25V
C8511	403 191 8808	ELECT 2.2U M 50V
C8512	403 071 6207	CERAMIC 220P K 50V
C8513	403 071 6207	CERAMIC 220P K 50V
C8522	403 071 6207	CERAMIC 220P K 50V
C8523	403 071 6207	CERAMIC 220P K 50V
C8524	403 071 6207	CERAMIC 220P K 50V
C8525	403 191 8600	ELECT 4.7U M 25V
C8526	403 069 1207	CERAMIC 1000P K 50V
C8528	403 069 1207	CERAMIC 1000P K 50V
C8529	403 191 8600	ELECT 4.7U M 25V
C8531	403 191 8808	ELECT 2.2U M 50V
C8532	403 071 6207	CERAMIC 220P K 50V
C8533	403 071 6207	CERAMIC 220P K 50V
C8541	403 193 7601	ELECT 220U M 6.3V
C8551	403 189 2405	ELECT 10U M 16V
C8553	403 139 1502	ELECT 10U M 16V
C8554	403 163 7907	ELECT 47U M 6.3V
C8555	403 001 1609	CERAMIC 0.01U K 16V
CN853	613 105 6633	SOCKET,21P
CN854	613 105 6640	SOCKET,21P
D8501	407 070 7104	ZENER DIODE GZS5.6X-BT
OR	407 053 6704	ZENER DIODE MTZ5.6B-T-77
D8502	407 053 6704	ZENER DIODE MTZ5.6B-T-77
OR	407 070 7104	ZENER DIODE GZS5.6X-BT
D8503	407 070 7104	ZENER DIODE GZS5.6X-BT
OR	407 053 6704	ZENER DIODE MTZ5.6B-T-77
D8504	407 070 7104	ZENER DIODE GZS5.6X-BT
OR	407 053 6704	ZENER DIODE MTZ5.6B-T-77
D8505	407 070 7104	ZENER DIODE GZS5.6X-BT
OR	407 053 6704	ZENER DIODE MTZ5.6B-T-77
D8507	407 070 7104	ZENER DIODE GZS5.6X-BT
OR	407 053 6704	ZENER DIODE MTZ5.6B-T-77
IC851	409 051 2801	IC TC4052BP
IC852	409 120 3401	IC LA7221
OR	409 003 4501	IC BA7021
JK851	613 009 1529	SOCKET
JK852	613 085 8092	SOCKET
JK853	613 009 1529	SOCKET
JK854	613 085 8092	SOCKET
Q8503	405 018 2501	TR 2SC3399-AC
OR	405 000 6104	TR DTC144ES-DCTP
R8501	401 012 5609	CARBON 1K JA 1/4W
R8502	401 012 5609	CARBON 1K JA 1/4W
R8503	401 022 1806	CARBON 680 JA 1/4W
R8504	401 022 1806	CARBON 680 JA 1/4W

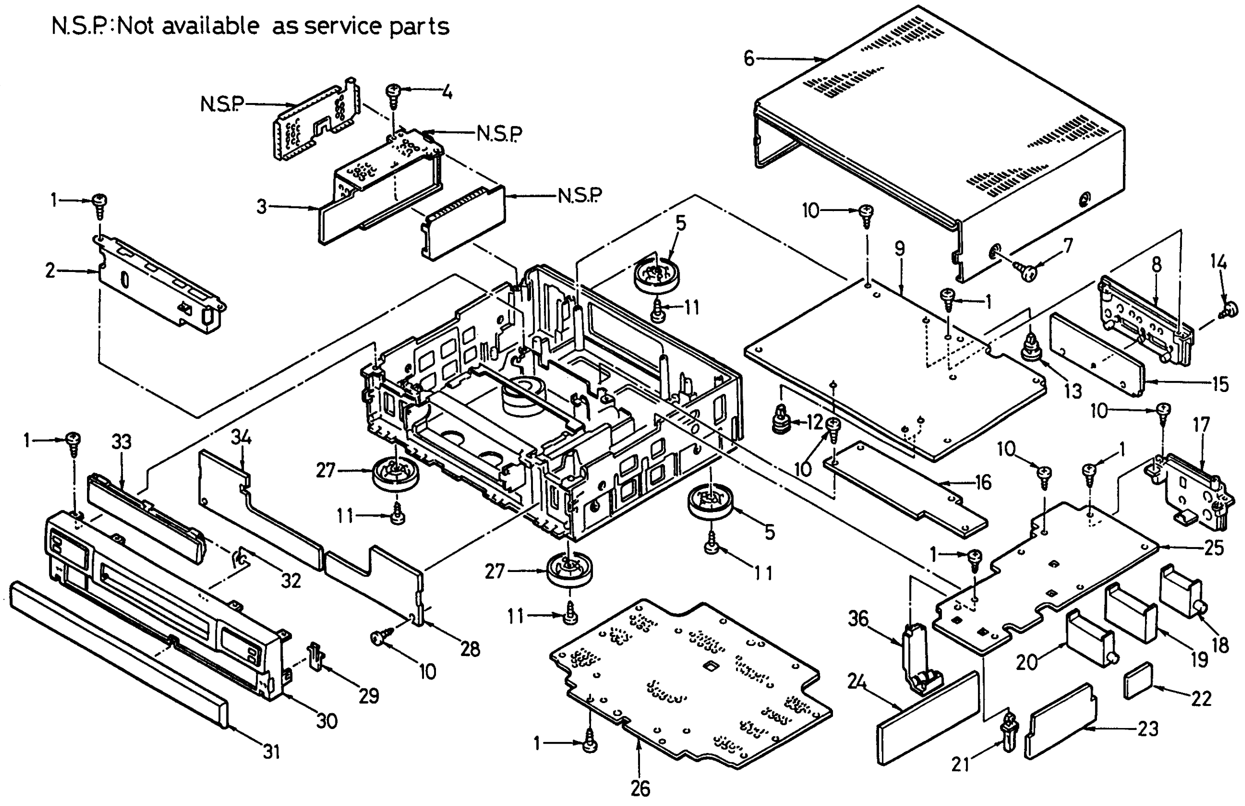
LOCATION	PARTS NO.	DESCRIPTION			
R8505	401 016 5704	CARBON	220K	JA	1/4W
R8508	401 012 5609	CARBON	1K	JA	1/4W
R8521	401 012 5609	CARBON	1K	JA	1/4W
R8522	401 012 5609	CARBON	1K	JA	1/4W
R8523	401 022 1806	CARBON	680	JA	1/4W
R8524	401 022 1806	CARBON	680	JA	1/4W
R8525	401 016 5704	CARBON	220K	JA	1/4W
R8528	401 012 5609	CARBON	1K	JA	1/4W
R8541	401 020 1907	CARBON	4.7K	JA	1/4W
R8542	401 020 1907	CARBON	4.7K	JA	1/4W
R8543	401 016 4707	CARBON	22K	JA	1/4W
R8544	401 016 4707	CARBON	22K	JA	1/4W
R8547	401 012 5609	CARBON	1K	JA	1/4W
R8551	401 022 6702	CARBON	75	JA	1/4W
R8553	401 022 6702	CARBON	75	JA	1/4W
R8554	401 012 5609	CARBON	1K	JA	1/4W
RB851	613 085 3110	R-NETWORK,100KX5			
RB852	613 085 3110	R-NETWORK,100KX5			

8. Mechanical Parts List

8-1. CABINET & CHASSIS PARTS

LOCATION	PARTS NO.	DESCRIPTION
1	411 137 0007	SCR L-TPG BIN 3X10
2	613 132 6545	COMPL PCB,VP-1
3	613 124 7307	COMPL PCB,PW-1
4	411 021 7907	SCR S-TPG BIN 4X12
5	613 129 8699	STAND,BACK
6	613 125 9416	COVER,TOP
7	412 028 9406	SPECIAL SCREW
8	613 122 0027	TERMINAL,PAL
9	613 127 6031	COMPL PCB,CP-A
10	411 021 3800	SCR S-TPG BIN 3X10
11	411 137 0007	SCR L-TPG BIN 3X10
OR	411 021 4005	SCR S-TPG BIN 3X12
12	613 053 8055	FIXER
13	613 126 6629	HOLDER
14	411 021 3701	SCR S-TPG BIN 3X10
15	613 125 9751	COMPL PCB,TB-1
17	613 122 0034	TERMINAL,RF
18	613 110 3665	MODULATOR,RF
18	613 120 5642	MODULATOR,RF
19	613 122 1062	IF PACK
20	613 122 1055	TUNER PACK
21	613 082 5223	HOLDER,VPT
22	613 127 8035	COMPL PCB,TN-7
23	613 123 0866	COMPL PCB,TN-5
24	613 130 0613	COMPL PCB,TM-6
25	613 127 6826	COMPL PCB,CP-B
26	613 132 3742	COVER,BOTTOM
27	613 123 1245	STAND,FRONT
28	613 127 3962	COMPL PCB,TM-1
29	613 048 2884	LOCK
30	613 128 2285	ASSY,CABINET,FRONT
31	613 127 7335	ASSY,DOOR
32	613 083 6441	SPRING,DR CASSE-HCD
33	613 132 4121	DOOR,CASSETTE
34	613 127 5393	COMPL PCB,AD-2
36	613 119 6391	HOLDER,VPT

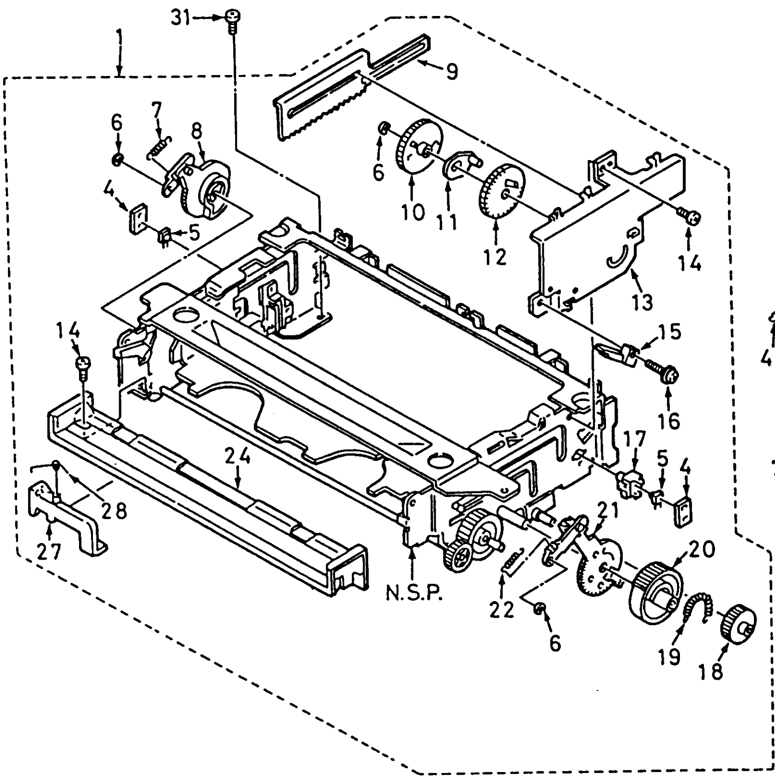
N.S.P:Not available as service parts

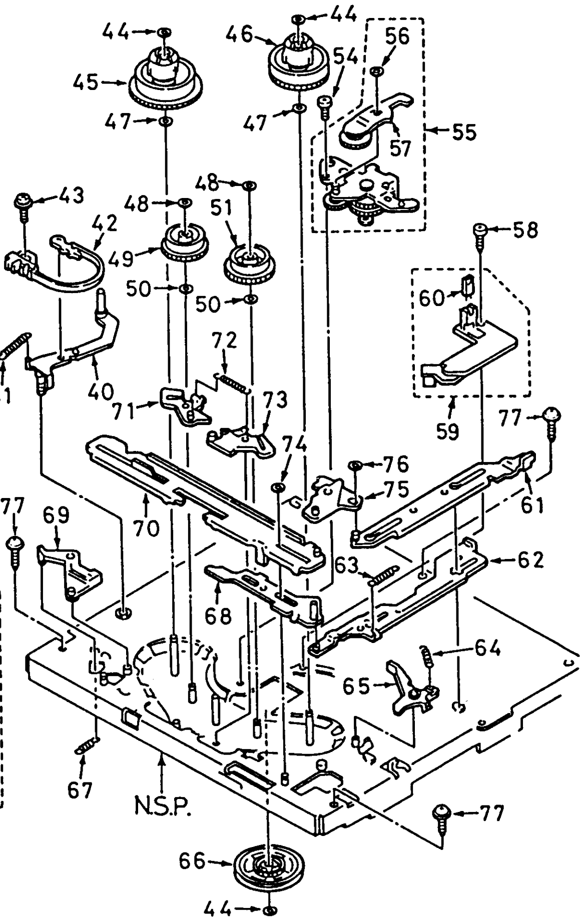


8-2. MECHANISM PARTS 1

LOCATION	PARTS NO.	DESCRIPTION
1	613 125 4879	COMPL,CASSETTE MECHA
4	613 022 0585	LID
5	407 098 3201	PHOTO COUPLE PN150SAN
6	411 015 9801	RING E 2.3
7	613 022 1643	SPRING,LINK L
8	613 022 0073	ASSY,GEAR,LEVER L
9	613 022 2695	RACK
10	613 022 2633	GEAR,LOCK
11	613 021 9916	ASSY,LEVER,PINION
12	613 022 2626	GEAR,PINION
13	613 021 9657	ASSY,BRACKET,GEAR
14	411 027 1305	SCR S-TPG BIN 2.6×4
15	613 006 4479	SPECIAL SWITCH
OR	613 095 0949	SPECIAL SWITCH
16	411 106 9208	SCR PAN+SW+W 2×9
17	613 022 0943	HOLDER,TRANSISTOR
18	613 022 2619	GEAR,IDLER
19	613 022 1667	SPRING,GEAR MAIN
20	613 022 2596	GEAR,MAIN
21	613 022 0097	ASSY,GEAR,LEVER R
22	613 022 1674	SPRING,LINK R
24	613 108 0256	BOARD,UNDER
27	613 124 5006	LEVER,SAFETY SWITCH
28	613 125 6149	SPRING,SAFETY SWITCH
31	411 001 8702	SCR BIN 3×6
40	613 100 0391	ASSY,LEVER,TENSION
41	613 085 7996	SPRING,LEVER TENSION
42	613 021 9701	ASSY,HOLDER,BAND
43	411 144 2803	SCR PAN+SW+W 2.6×6
OR	411 036 2805	SCR PAN+SW+W 2.6×6
44	411 109 1605	WASHER Y 2.6×6×0.25
45	613 078 8375	ASSY,REEL,SUPPLY
46	613 022 0110	ASSY,REEL,TAKE UP

LOCATION	PARTS NO.	DESCRIPTION
47	412 021 5306	SPECIAL WASHER 3.1×6×0.3
OR	412 015 8900	SPECIAL WASHER 3.1×6×0.4
OR	412 015 8504	SPECIAL WASHER 3.1×6×0.5
48	411 109 1506	WASHER Y 2.1×6×0.25
OR	411 109 1407	WASHER Y 2.1×5×0.25
49	613 126 6148	GEAR,REEL SUPPLY
50	412 026 7305	SPECIAL WASHER 2.6×6×0.25
51	613 126 6155	GEAR,REEL TAKE UP
54	412 042 4302	SPECIAL SCREW 2.6×4
55	613 085 7101	COMPL,IDLER,CLUTCH
56	411 120 1301	WASHER Y 2.1×4×0.25
57	613 022 0134	ASSY,IDLER
58	411 021 3107	SCR S-TPG BIN 2.6×8
59	613 120 9053	COMPL,PCB,MC-4
60	407 016 7205	LED LN59
61	613 021 9985	ASSY,SLIDE,ACT PLATE
62	613 021 9992	ASSY,SLIDE,C BRAKE
63	613 022 1612	SPRING,RETURN SLIDE
64	613 022 1506	SPRING,SUB T
65	613 098 0106	ASSY,BRAKE,SUB T
66	613 077 3647	PULLEY,REEL
67	613 022 1490	SPRING,SUB SUPPLY
68	613 022 2374	SLIDE,ACT BRAKE
69	613 084 8871	BRAKE,SUB SUPPLY
70	613 022 0004	ASSY,SLIDE,M PLATE
71	613 080 9216	ASSY,BRAKE,SUPPLY
72	613 086 2914	SPRING,MAIN BRAKE
73	613 080 9209	ASSY,BRAKE,TAKE UP
74	411 109 3005	WASHER Y 2.6×5×0.5
75	613 022 2015	LEVER,CONT PLATE
76	412 015 9501	SPECIAL WASHER
77	411 021 7907	SCR S-TPG BIN 4×12



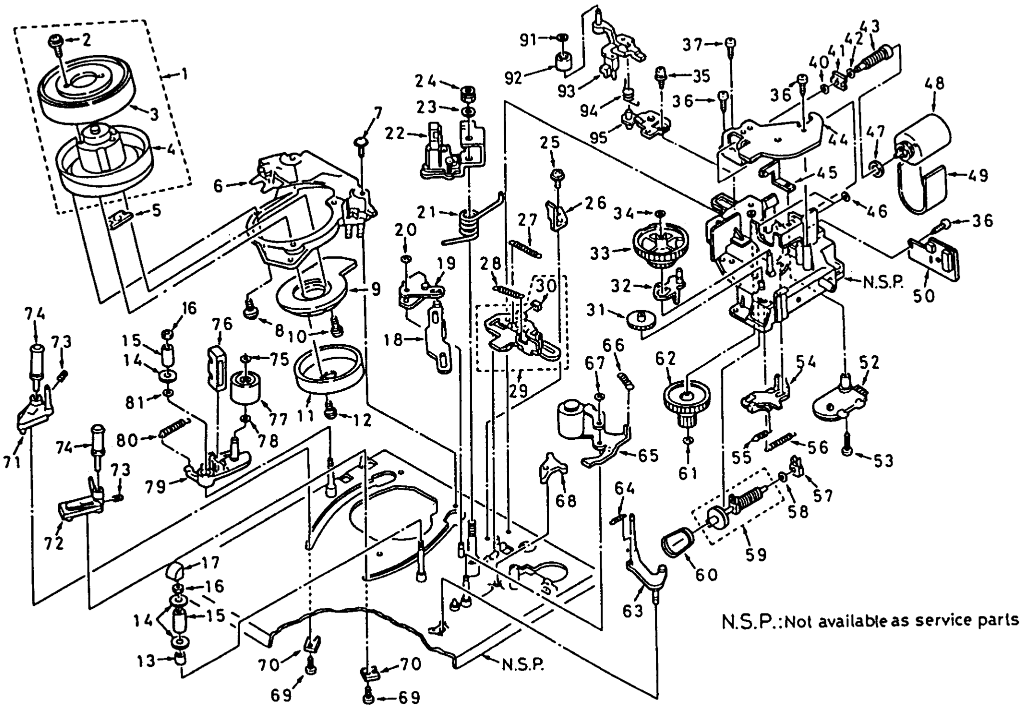


N.S.P.: Not available as service parts

8-3. MECHANISM PARTS 2

LOCATION	PARTS NO.	DESCRIPTION
1	613 097 5355	COMPL,CYLINDER,4H6P-R
2	411 038 1608	SCR PAN+W 3×8
3	613 097 5362	ASSY,CYLINDER,UPR 4H6P-R
4	613 095 9881	ASSY,CYLINDER,LWR 6K
5	613 097 2170	SPACER,MOTOR,0.3T
6	613 088 9072	BASE,CYLINDER
7	411 047 7509	SCR PAN+FLG 3×6
8	411 047 5000	SCR PAN+FLG 2.6×8
9	613 085 7279	STATOR,MOTOR CYLINDER
10	411 044 9209	SCR PAN+SW 2.3×8
OR	411 044 8301	SCR PAN+SW 2.3×10
11	613 022 4019	ROTOR,MOTOR CYLINDER
12	411 044 9001	SCR PAN+SW 2.3×6
13	613 123 4802	SLEEVE
14	613 053 3227	SPECIAL WASHER
15	613 123 4970	TAPE GUIDE
16	412 026 2607	SPECIAL NUT (M3)
17	613 123 9418	CAP
18	613 021 9961	ASSY,SLIDE,ACT PINCH
19	613 021 9800	ASSY,LEVER,CAM PINCH
20	411 109 2008	WASHER Y 3.1×8×0.5
21	613 022 1797	SPRING,ACE HEAD
22	613 021 9640	COMPL,BRACKET,HEAD
23	613 110 1692	SLEEVE,AC HEAD
24	412 015 8207	SPECIAL NUT (M5)
25	411 120 0007	SCR PAN+SW+W 2.6×5
26	613 120 3631	BRACKET,STOPPER
27	613 022 1575	SPRING,LINK LOCK
28	613 022 1582	SPRING,SLIDE BRAKE
29	613 094 9233	ASSY,SLIDE,CAM
30	613 022 2725	DAMPER
31	613 022 2534	GEAR,FRONT LOAD
32	613 094 1206	ASSY,LEVER,FRONT
33	613 077 3586	GEAR,HELICAL FRONT
34	613 027 0504	WASHER 4.1×6.5×0.5
35	411 046 8002	SCR PAN+SW+W 2.6×6
36	411 023 2801	SCR S-TPG PAN 2.6×6
37	411 023 3303	SCR S-TPG PAN 2.6×8
OR	411 021 3107	SCR S-TPG BIN 2.6×8
40	613 053 2381	SPECIAL WASHER
41	613 077 3227	HOLDER,WORM
42	613 027 0382	WASHER
43	613 078 8320	ASSY,WORM,FRONT

LOCATION	PARTS NO.	DESCRIPTION
44	613 117 0599	BRACKET,HOLDER
45	613 093 9159	PLATE,NUT
46	613 093 8374	DAMPER,MOTOR
47	613 077 3616	DAMPER,WORM
48	613 121 9960	ASSY,LOADING MOTOR
49	613 092 9945	DAMPER,MOTOR
50	613 109 6462	COMPL,PCB,MC-3
52	613 110 0374	ROTARY SWITCH
53	411 126 5303	SCR PAN 2.6×13
54	613 092 9921	ASSY,SLIDE,FRONT
55	613 092 5985	SPRING,LEVER LOAD
56	613 092 5992	SPRING,LEVER ACT
57	613 092 5886	HOLDER,WORM
58	613 027 0627	WASHER 2.1×6×0.5
59	613 092 9938	ASSY,WORM,LOAD
60	613 022 2985	BELT,LOADING
61	412 033 4106	WASHER SLIT 2.6×5×0.5
62	613 077 3579	GEAR,HELICAL
63	613 102 9293	ASSY,LEVER,REV GUIDE
64	613 022 1568	SPRING,REVIEW LEVER
65	613 022 0158	COMPL,PINCH ROLLER
66	613 022 1483	SPRING,PINCH ROLLER
67	411 109 2107	WASHER Y 3.6×6×0.5
68	613 078 8160	COMPL,LEVER,ACT BRAKE
69	411 031 1209	SCR BIN 2.6×5
70	613 022 1919	PLATE,GUIDE
71	613 021 9725	ASSY,BASE,ROLLER S
72	613 021 9732	ASSY,BASE,ROLLER T
73	411 063 0904	SCR SET HEX-SCT 2×3
74	613 022 0233	ASSY,GUIDE,ROLLER
75	411 109 2602	WASHER Y 1.5×4×0.25
76	613 022 4224	HEAD,FULL ERASE
77	613 022 2817	IMPEDANCE ROLLER
78	412 032 5807	SPECIAL WASHER 2.1×5×0.13
79	613 093 8305	ASSY,LEVER,FE HEAD
80	613 022 1698	SPRING,ERASE HEAD
81	411 109 1704	WASHER Y 6.4×10×0.25
90	613 120 5703	FLEXIBLE FLAT CABLE 24
91	411 109 1803	WASHER Y 2.6×6×0.5
92	613 119 8562	ASSY,ROLLER,CLEANER
93	613 119 8548	ASSY,LEVER,CLEANER
94	613 119 8593	SPRING
95	613 119 8524	ASSY,BRACKET,CLEANER

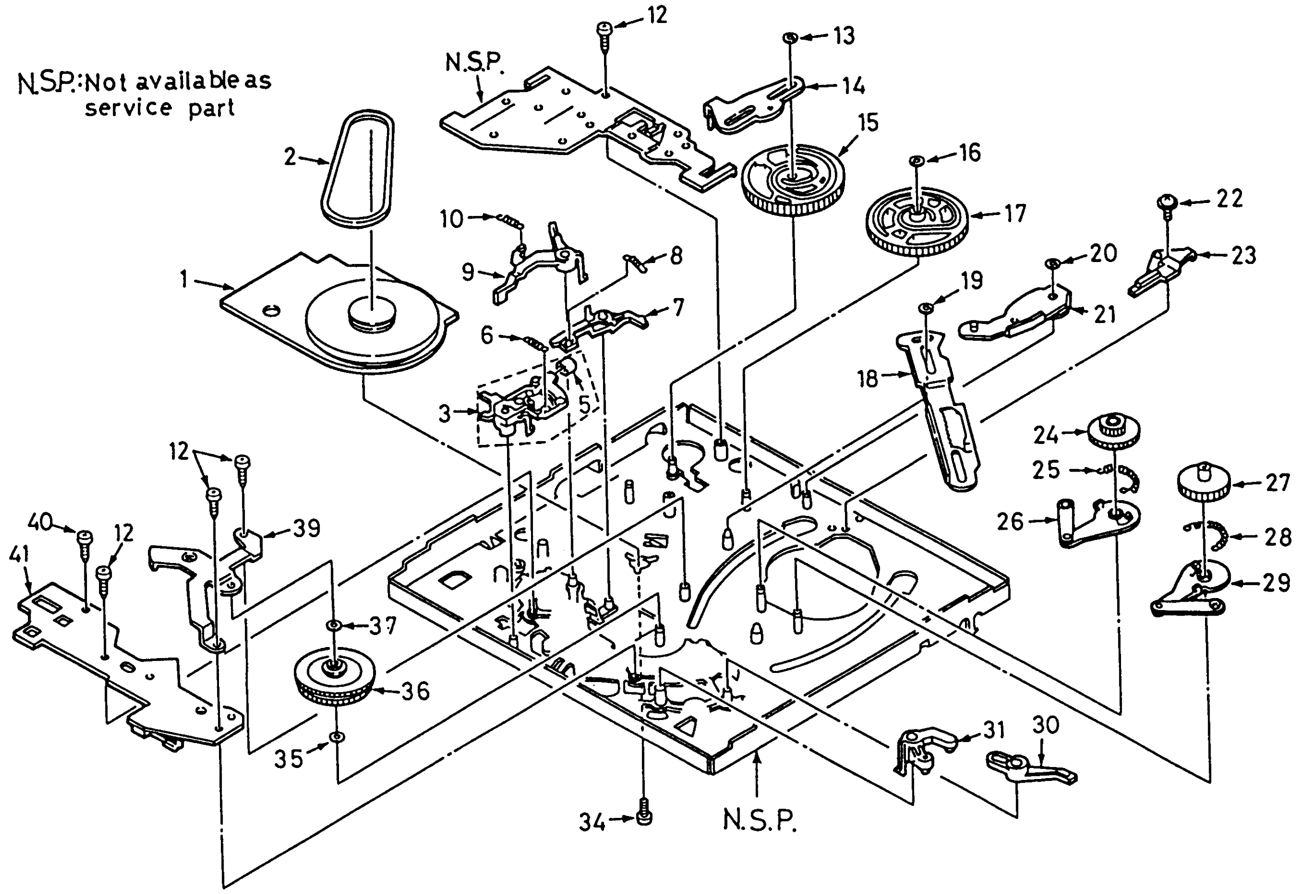


N.S.P.:Not available as service parts

8-4. MECHANISM PARTS 3

LOCATION	PARTS NO.	DESCRIPTION
1	613 022 4491	MOTOR,CAPSTAN
2	613 022 2978	BELT,REEL DRIVE
3	613 021 9848	ASSY,LEVER,CLUTCH
5	613 079 1023	DAMPER,LEVER CLUTCH
6	613 022 1520	SPRING,LEVER CLUTCH
7	613 082 3434	LEVER,CHANGE CLUTCH
8	613 022 1711	SPRING,CHANGE CLUTCH
9	613 081 7518	ASSY,BRAKE CAPSTAN
10	613 098 2285	SPRING,CAPSTAN
12	411 021 3107	SCR S-TPG BIN 2.6×8
13	411 109 2008	WASHER Y 3.1×8×0.5
14	613 021 9978	ASSY,SLIDE,CAM PLATE
15	613 022 2701	CAM,MODE
16	411 109 1902	WASHER Y 3.1×6×0.5
17	613 120 1576	CAM,MAIN
18	613 022 2664	RACK,LOAD
19	411 109 1803	WASHER Y 2.6×6×0.5
20	411 109 2107	WASHER Y 3.6×6×0.5
OR	411 109 2206	WASHER Y 3.6×8×0.5
21	613 021 9794	ASSY,LEVER,CAM LOAD
22	411 047 6809	SCR PAN+FLG 3×4
23	613 021 9763	ASSY,EARTH,CYLINDER
24	613 090 6380	GEAR,LOAD TAKE UP
25	613 022 1551	SPRING,GEAR LOAD T

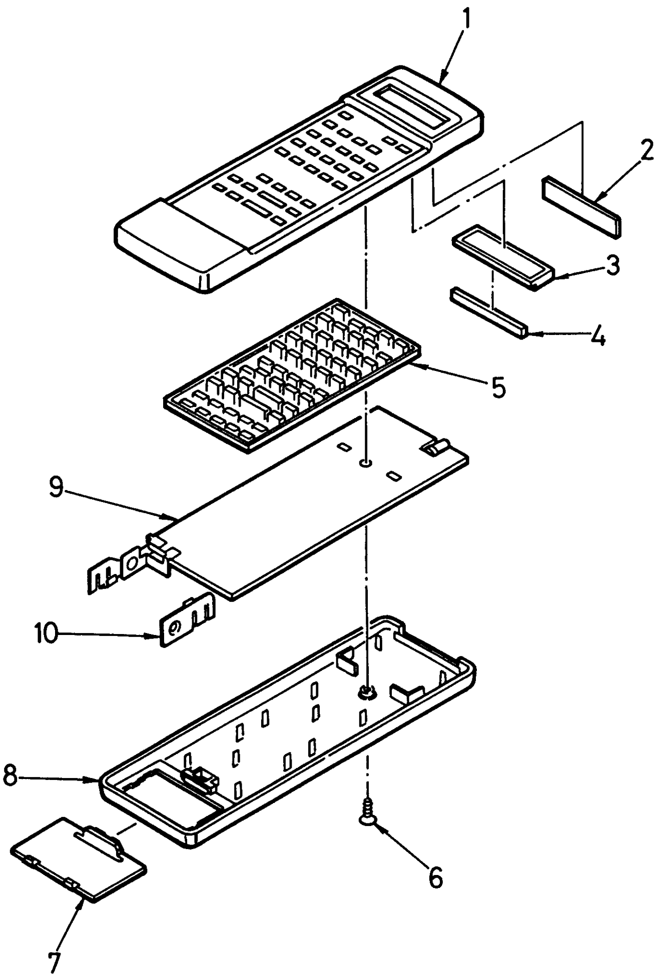
LOCATION	PARTS NO.	DESCRIPTION
26	613 021 9879	ASSY,LEVER,LOAD T
27	613 090 6373	GEAR,LOAD SUPPLY
28	613 022 1704	SPRING,GEAR LOAD S
29	613 021 9862	ASSY,LEVER,LOAD S
30	613 022 2039	LEVER,RETURN TENSION
31	613 091 3104	ASSY,LEVER CONTROL
34	411 040 2303	SCR PAN 2.6×5
35	412 015 8603	SPECIAL WASHER 3.1×6×0.25
36	613 102 0900	ASSY,GEAR FRICTION
37	411 109 1605	WASHER Y 2.6×6×0.25
39	613 079 8121	BRACKET,PULLEY
40	411 100 0300	SCR S-TPG BIN 2.6×5
41	613 123 9067	COMPL,PCB,MC-1
R1	401 026 0607	CARBON 270 JA 1/6W
OR	401 017 0708	CARBON 270 JA 1/4W
R2	401 024 6700	CARBON 100 JA 1/6W
OR	401 012 4404	CARBON 100 JA 1/4W
R3	401 026 0607	CARBON 270 JA 1/6W
OR	401 017 0708	CARBON 270 JA 1/4W
D1	407 094 1300	PHOTO COUPLE SPI-315-04-C
OR	407 043 0101	PHOTO DIODE ON2170-R
D2	407 094 1300	PHOTO COUPLE SPI-315-04-C
OR	407 043 0101	PHOTO DIODE ON2170-R
SW1	613 022 4545	SPECIAL SWITCH,EP



8-5. REMOCON,VC153NX

COMPL.NO. 613 127 4426

LOCATION	PARTS NO.	DESCRIPTION
1	613 127 8653	ASSY,CABINET,TOP
2	613 122 5305	WINDOW
3	613 123 1979	LCD
4	613 123 1931	CONNECTOR
5	613 128 0243	BUTTON
6	411 101 7308	SCR S-TPG FLT 2.6X10
7	613 122 5220	LID,BATTERY
8	613 122 5213	CABINET,BOTTOM
9	613 122 4940	COMPL PCB,RM-1
10	613 123 1962	TERMINAL,BATTERY



8-6. COMPL PCB,RM-1

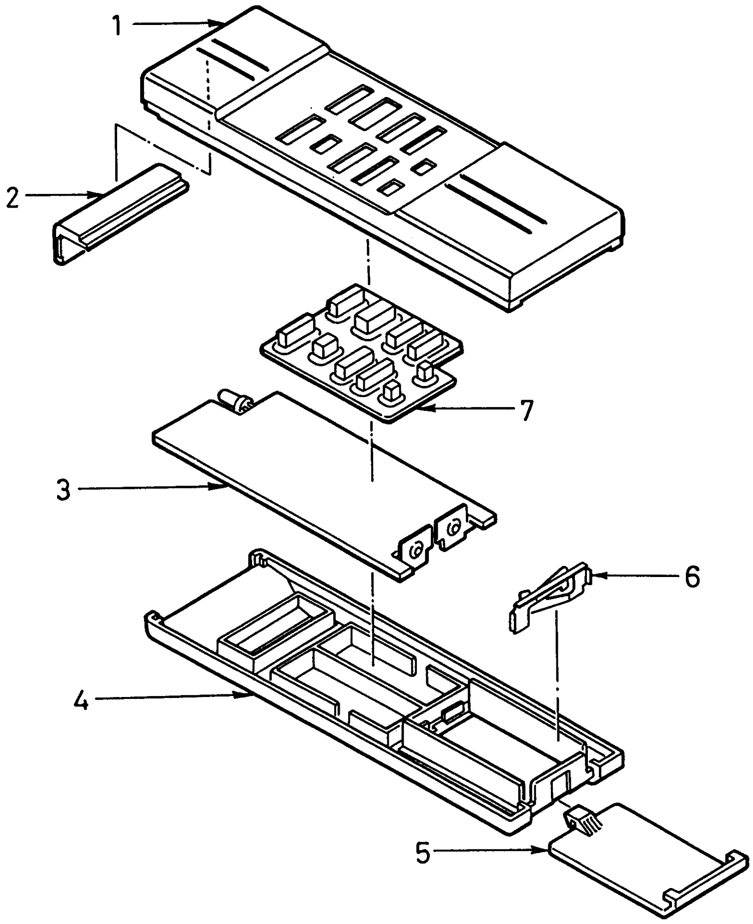
COMPL.NO. 613 122 4940

LOCATION	PARTS NO.	DESCRIPTION
	613 123 1948	TERMINAL,BATTERY,+
	613 123 1955	TERMINAL,BATTERY,-
	613 123 1900	SPACER
C1	403 068 0409	CERAMIC 0.1U Z 25V
C2	403 152 9707	ELECT 22U M 6.3V
C3	403 009 9300	CERAMIC 100P K 50V
C4	403 009 9300	CERAMIC 100P K 50V
C5	403 068 0409	CERAMIC 0.1U Z 25V
C6	403 068 0409	CERAMIC 0.1U Z 25V
C7	403 153 0802	ELECT 220U M 4V
IC1	409 245 3003	IC LC5872-S-1275
OR	409 246 8205	IC LC5872-S-1300
J1	401 035 4108	MT-GLAZE 0.000 ZA 1/8W
LED1	407 040 3709	LED SLR-932A
Q1	405 021 2406	TR 2SD1048-X7-TB
OR	405 021 2505	TR 2SD1048-X8-TB
R1	401 035 4603	MT-GLAZE 100 JA 1/8W
R2	401 169 5200	MT-GLAZE 2.2 JA 1/4W
R3	401 035 4603	MT-GLAZE 100 JA 1/8W
R4	401 037 5806	MT-GLAZE 1M JA 1/10W
R5	401 039 0601	MT-GLAZE 820K JA 1/10W
X1	613 123 2020	RESONATOR,CERAMIC1.216MHZ

8-7. REMOCON

COMPL.NO. 613 132 3544

LOCATION	PARTS NO.	DESCRIPTION
1	613 132 6095	ASSY,CABINET,FRONT
2	613 125 8204	WINDOW
3	613 132 5999	COMPL PCB,RM-1
4	613 125 8174	CABINET,BOTTOM
5	613 125 8198	LID,BATTERY
6	613 125 8259	TERMINAL,BATTERY
7	613 127 8721	BUTTON



8-8. COMPL PCB,RM-1

COMPL.NO. 613 132 5999

LOCATION	PARTS NO.	DESCRIPTION
	613 125 8266	TERMINAL,BATTERY,+
	613 125 8273	TERMINAL,BATTERY,-
C1	403 039 2104	ELECT 47U M 6.3V
C2	403 068 0409	CERAMIC 0.1U Z 25V
C3	403 009 9300	CERAMIC 100P K 50V
C4	403 009 9300	CERAMIC 100P K 50V
D1	407 077 2508	DIODE 1SS272
IC	410 122 2101	IC UPD6600GS-535
LED1	407 040 3709	LED SLR-932A
OR	407 126 0400	LED LD271E7317
R1	401 036 0307	MT-GLAZE 2.2 JA 1/8W
TR	405 021 2406	TR 2SD1048-X7
OR	405 021 2505	TR 2SD1048-X8
X1	613 016 6913	CERAMIC RESONATOR
OR	613 016 6920	CERAMIC RESONATOR

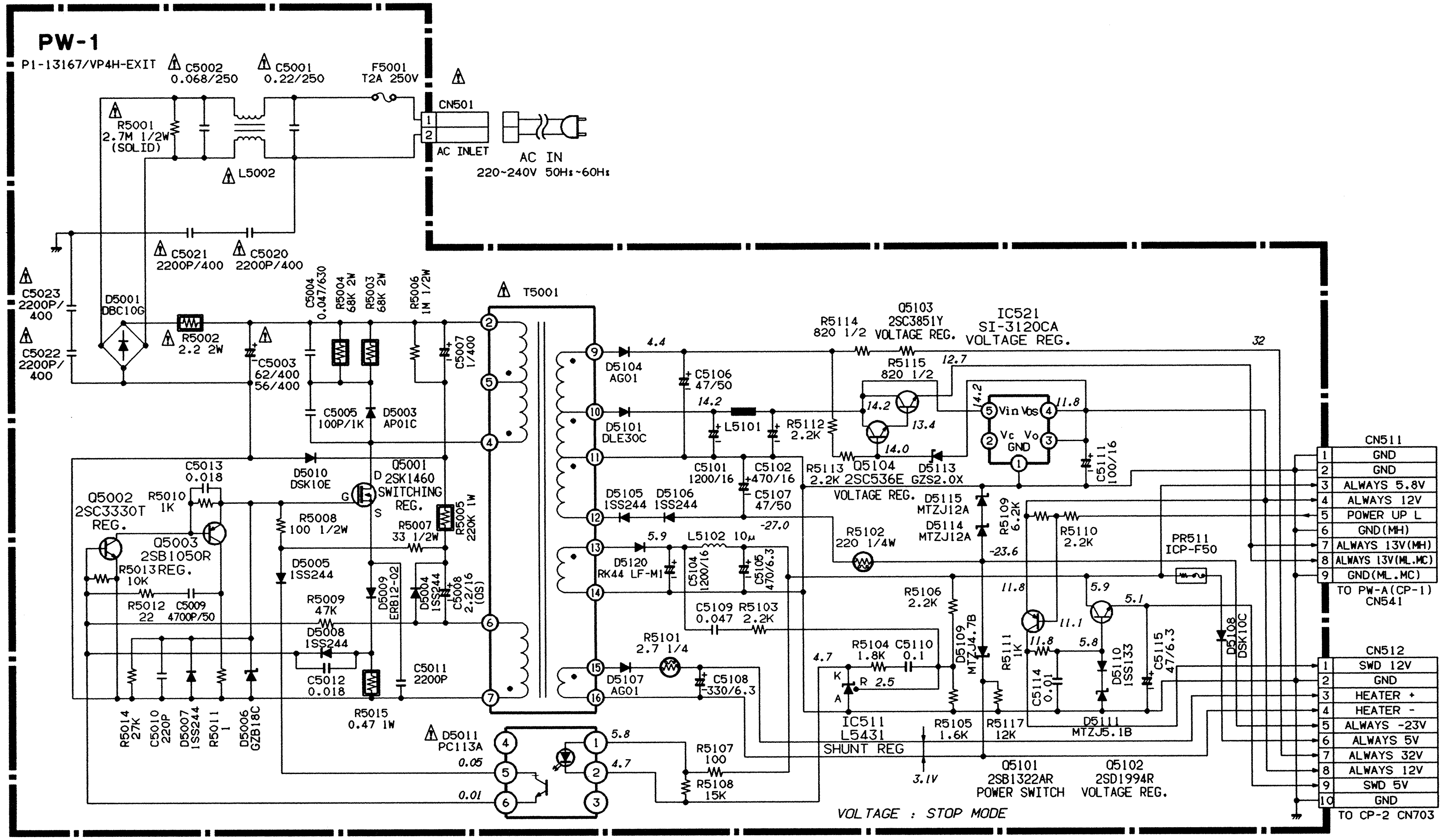
8-9. ACCESSORIES

LOCATION	PARTS NO.	DESCRIPTION
	613 127 4426	REMOCON,VC153NX
	613 132 3544	REMOCON
	613 127 5140	INSTRUCTION MANUAL
	613 127 7625	INSTRUCTION MANUAL,VPT
	613 096 6773	CABLE,ANT
OR	613 011 7359	CABLE,ANT
	613 123 0781	CORD,POWER
	613 133 1907	HOLDER

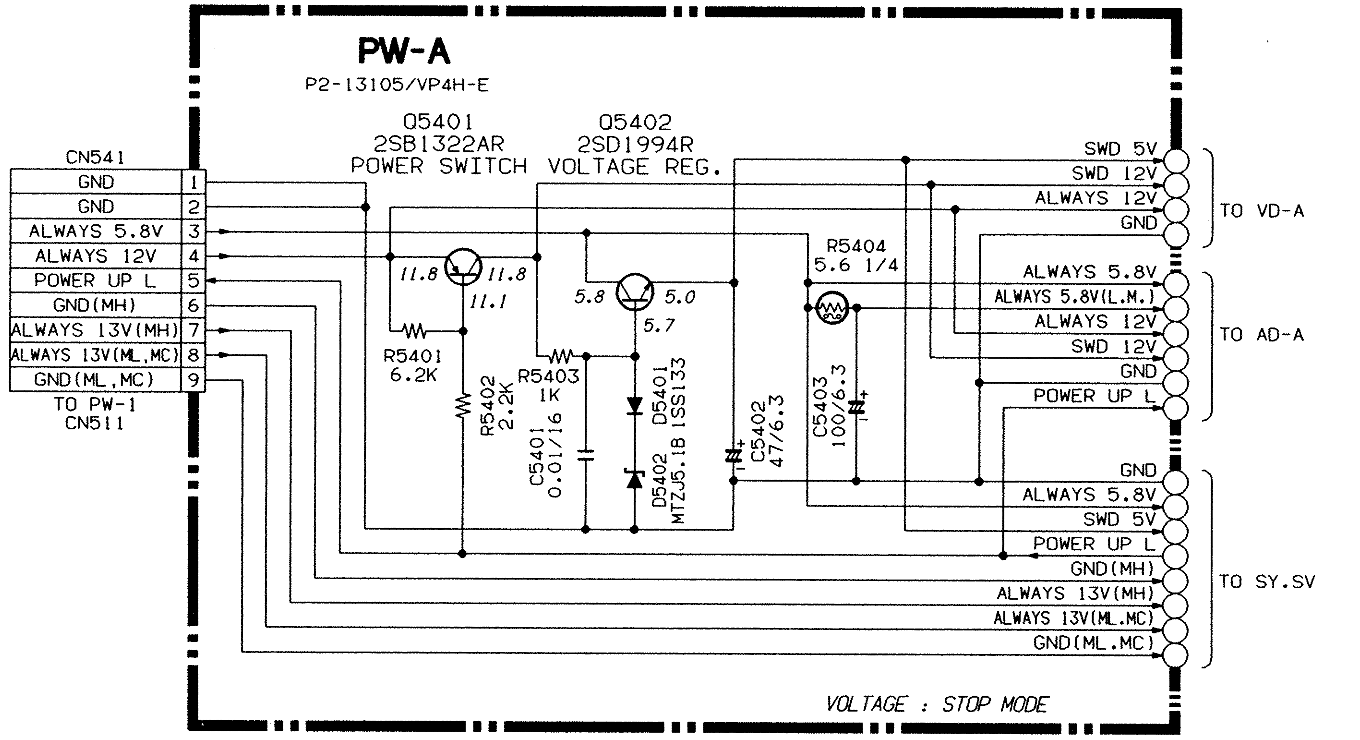
8-10. PACKING METERIALS

LOCATION	PARTS NO.	DESCRIPTION
	613 128 2919	CORR CASE,INNER
	613 123 7414	CUSHION,INNER,FRONT
	613 123 7421	CUSHION,INNER,BACK
	613 095 0765	POLYE COVER,INNER

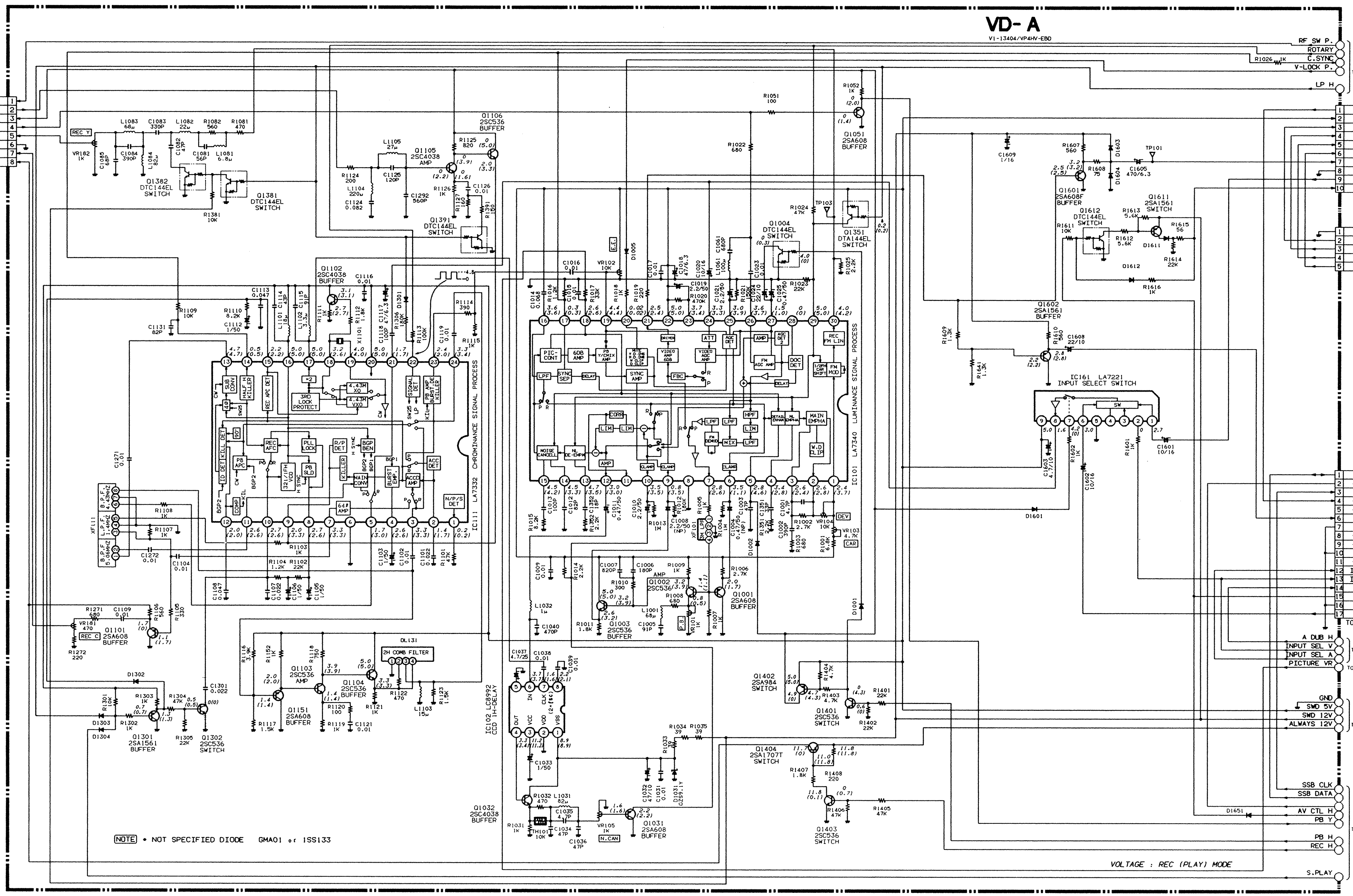
9-1. PW-1 BOARD POWER SUPPLY CIRCUIT DIAGRAM


PW-1
P1-13167/VP4H-EXIT
C5002 0.068/250
C5001 0.22/250
F5001 T2A 250V
CN501
AC INLET
AC IN 220~240V 50Hz~60Hz
R5001 2.7M 1/2W (SOLID)
L5002
C5021 2200P/400
C5020 2200P/400
C5023 2200P/400
C5022 2200P/400
D5001 DBC10G
R5002 2.2 2W
C5003 62/400 56/400
C5004 0.047/630
R5004 68K 2W
R5003 68K 2W
R5006 1M 1/2W
C5007 1/400
T5001
C5005 100P/1K
D5003 AP01C
C5013 0.018
D5010 DSK10E
Q5001 2SK1460 SWITCHING REG.
Q5002 2SC3330T REG.
R5010 1K
Q5003 2SB1050R
R5013 10K REG.
R5012 22
C5009 4700P/50
R5008 100 1/2W
R5007 33 1/2W
R5005 220K 1W
D5005 1SS244
R5009 47K
D5008 1SS244
D5009 ER812-02
D5004 1SS244
C5008 2.2/16 (OS)
C5012 0.018
C5011 2200P
R5015 0.47 1W
R5014 27K
C5010 220P
D5007 1SS244
R5011 1
D5006 GZB18C
D5011 PC113A
0.05
0.01
D5104 AG01
4.4
C5106 47/50
D5101 DLE30C
14.2
L5101
R5112 2.2K
C5101 1200/16
C5102 470/16
C5107 47/50
D5105 1SS244
D5106 1SS244
-27.0
5.9
L5102 10μ
D5120 RK44 LF-M1
C5104 1200/16
C5105 470/6.3
C5109 0.047
R5103 2.2K
R5101 2.7 1/4
D5107 AG01
C5108 330/6.3
5.8
4.7
R5107 100
R5108 15K
R5114 820 1/2
Q5103 2SC3851Y VOLTAGE REG.
R5115 820 1/2
12.7
IC521 SI-3120CA VOLTAGE REG.
32
14.2
13.4
14.0
Vin Vos
Vc Vo
GND
11.8
C5111 100/16
R5113 2.2K
Q5104 2SC536E VOLTAGE REG.
D5113 GZS2.0X
D5115 MTZJ12A
D5114 MTZJ12A
R5109 6.2K
-23.6
R5102 220 1/4W
R5110 2.2K
PR511 ICP-F50
R5106 2.2K
11.8
11.1
5.9
5.1
D5108 DSK10C
R5104 1.8K
C5110 0.1
4.7
K
R 2.5
A
D5109 MTZJ4.7B
R5111 1K
11.8
5.8
C5114 0.01
D5110 1SS133
C5115 47/6.3
IC511 L5431 SHUNT REG
R5105 1.6K
R5117 12K
D5111 MTZJ5.1B
3.1V
Q5101 2SB1322AR POWER SWITCH
Q5102 2SD1994R VOLTAGE REG.
VOLTAGE : STOP MODE
CN511
1 GND
2 GND
3 ALWAYS 5.8V
4 ALWAYS 12V
5 POWER UP L
6 GND(MH)
7 ALWAYS 13V(MH)
8 ALWAYS 13V(ML.MC)
9 GND(ML.MC)
TO PW-A(CP-1) CN541
CN512
1 SWD 12V
2 GND
3 HEATER +
4 HEATER -
5 ALWAYS -23V
6 ALWAYS 5V
7 ALWAYS 32V
8 ALWAYS 12V
9 SWD 5V
10 GND
TO CP-2 CN703

9-2. CP-1 BOARD (PW-A) POWER SUPPLY CIRCUIT DIAGRAM

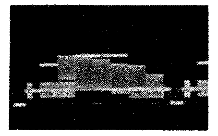
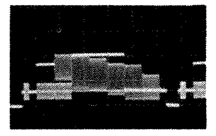
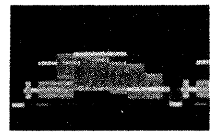
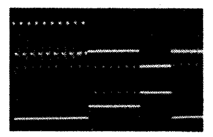
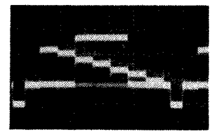
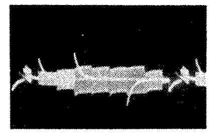
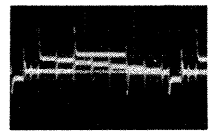
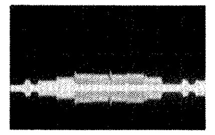
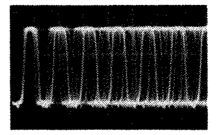
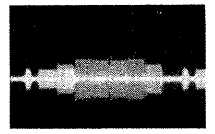
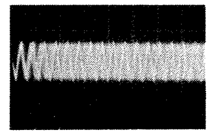
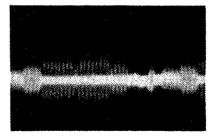
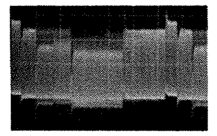
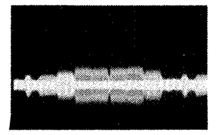
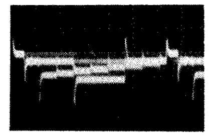
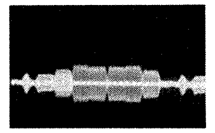
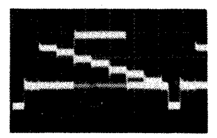
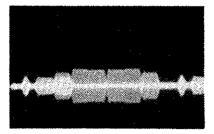
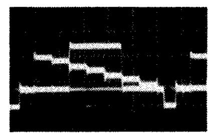
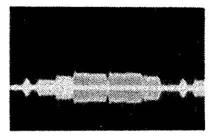
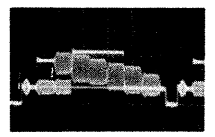
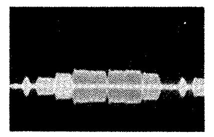

PW-A
P2-13105/VP4H-E
CN541
1 GND
2 GND
3 ALWAYS 5.8V
4 ALWAYS 12V
5 POWER UP L
6 GND(MH)
7 ALWAYS 13V(MH)
8 ALWAYS 13V(ML.MC)
9 GND(ML.MC)
TO PW-1 CN511
Q5401 2SB1322AR POWER SWITCH
Q5402 2SD1994R VOLTAGE REG.
11.8
11.8
11.1
5.8
5.0
5.7
R5401 6.2K
R5402 2.2K
R5403 1K
C5401 0.01/16
D5401 1SS133
D5402 MTZJ5.1B
C5402 47/6.3
R5404 5.6 1/4
C5403 100/6.3
SWD 5V
SWD 12V
ALWAYS 12V
GND
TO VD-A
ALWAYS 5.8V
ALWAYS 5.8V(L.M.)
ALWAYS 12V
SWD 12V
GND
POWER UP L
TO AD-A
GND
ALWAYS 5.8V
SWD 5V
POWER UP L
GND(MH)
ALWAYS 13V(MH)
ALWAYS 13V(ML.MC)
GND(ML.MC)
TO SY.SV
VOLTAGE : STOP MODE

9-3. CP-1 BOARD (VD-A) VIDEO CIRCUIT DIAGRAM

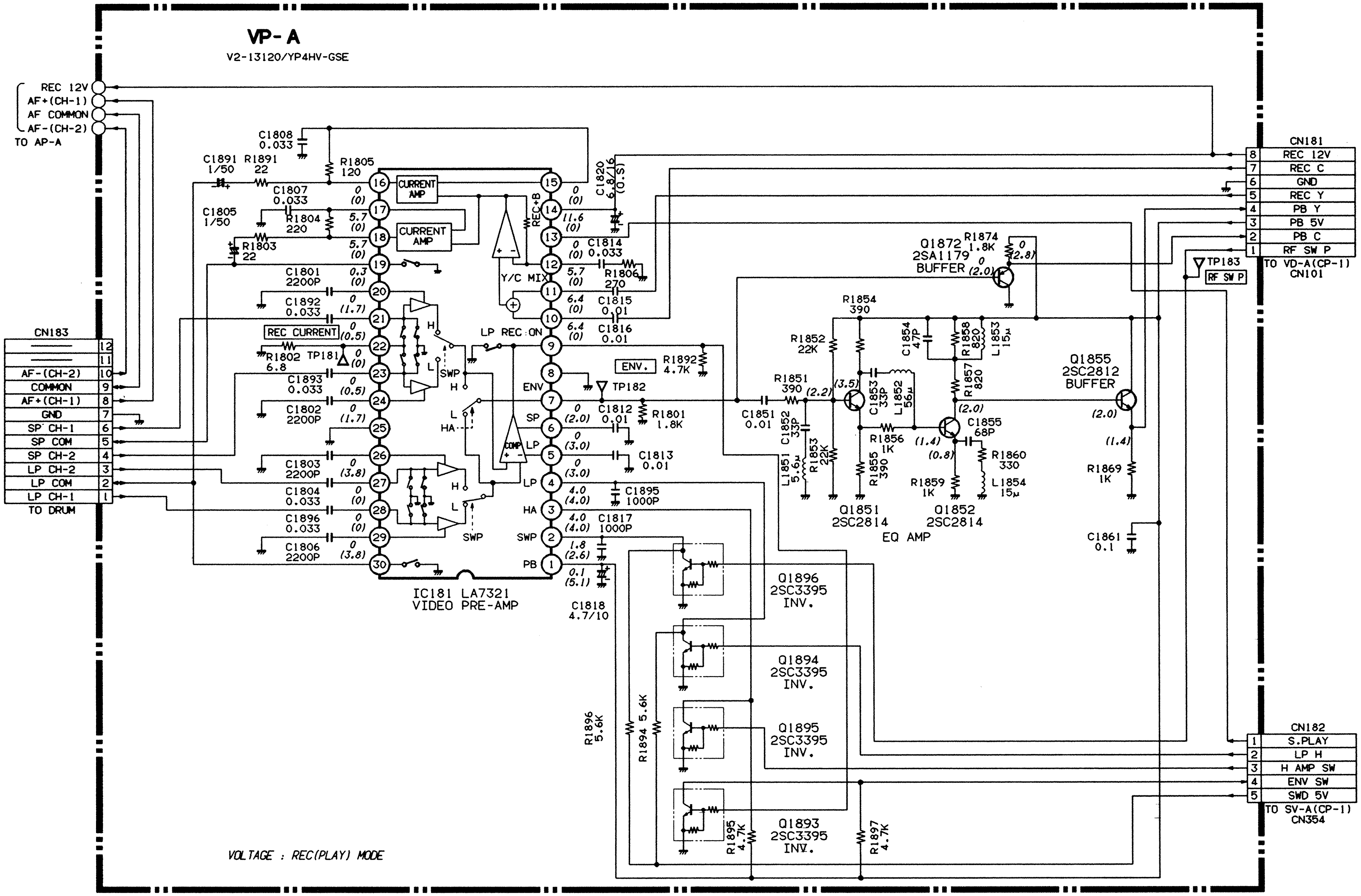

VD- A
V1-13404/VP4HV-E80
CN101
RF SW P.
PB C
PB 5V
PB Y
REC Y
GND
REC C
REC 12V
TO VP-1 CN181
CN851
SWD 5V
BLUE
GREEN
RED
BLANKING
VD AV OUT
GND
VD AV IN
F.S.S
TO TB-1
CN162
TO CP-2 CN704
CN161
SSB DATA
SSB CLK
VD RF OUT
INPUT SEL A
INPUT SEL V
A DUB H
TEXT H
VD TU IN
TO CP-2 CN601
RF SW P.
ROTARY
C.SYNC
V-LOCK P.
LP H
TO SV-A
A DUB H
INPUT SEL V
INPUT SEL A
PICTURE VR
TO AD-A
GND
SWD 5V
SWD 12V
ALWAYS 12V
TO PW-A
SSB CLK
SSB DATA
AV CTL H
PB Y
PB H
REC H
S.PLAY
IC111 LA7332 CHROMINANCE SIGNAL PROCESS
IC101 LA7340 LUMINANCE SIGNAL PROCESS
IC161 LA7221 INPUT SELECT SWITCH
IC102 LC8992 CCD 1H-DELAY
DL131 2H COMB FILTER
Q1105 2SC4038 AMP
Q1106 2SC536 BUFFER
Q1102 2SC4038 BUFFER
Q1051 2SA608 BUFFER
Q1601 2SA608F BUFFER
Q1602 2SA1561 BUFFER
Q1611 2SA1561 SWITCH
Q1612 DTC144EL SWITCH
Q1004 DTC144EL SWITCH
Q1351 DTA144EL SWITCH
Q1382 DTC144EL SWITCH
Q1381 DTC144EL SWITCH
Q1391 DTC144EL SWITCH
Q1101 2SA608 BUFFER
Q1301 2SA1561 BUFFER
Q1302 2SC536 SWITCH
Q1103 2SC536 AMP
Q1104 2SC536 BUFFER
Q1151 2SA608 BUFFER
Q1002 2SC536 AMP
Q1003 2SC536 BUFFER
Q1001 2SA608 BUFFER
Q1032 2SC4038 BUFFER
Q1031 2SA608 BUFFER
Q1402 2SA984 SWITCH
Q1401 2SC536 SWITCH
Q1404 2SA1707T SWITCH
Q1403 2SC536 SWITCH
NOTE * NOT SPECIFIED DIODE GMA01 or ISS133
VOLTAGE : REC (PLAY) MODE

9-4. WAVEFORM OF VIDEO

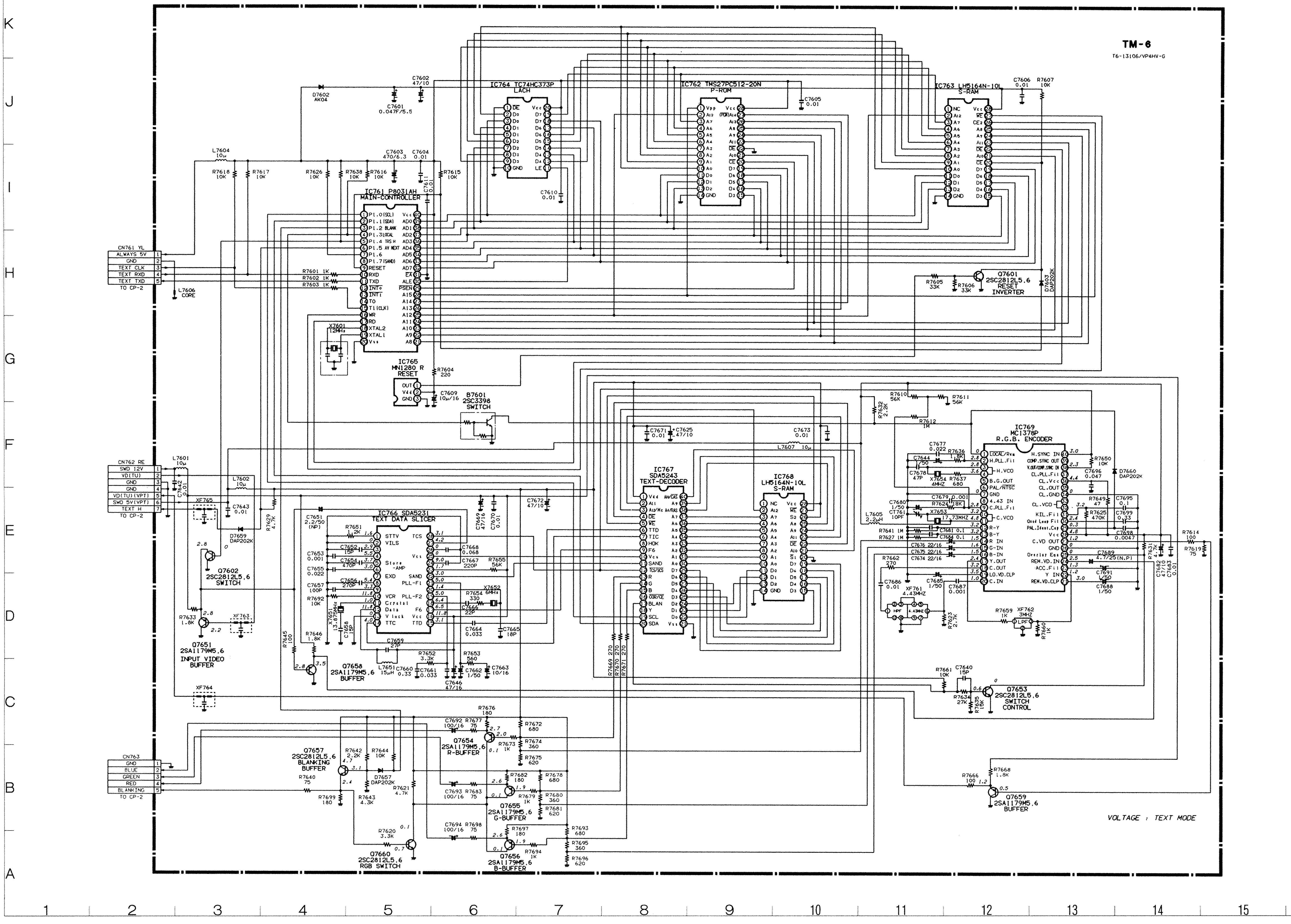
WF-V-SP

TEST LOCATION	WAVEFORM	MODE/LEVEL	TEST LOCATION	WAVEFORM	MODE/LEVEL
IC101 Pin 24		REC, EE 1 Vp-p	IC101 Pin 21		REC, EE 2 Vp-p
IC101 Pin 7		REC, EE 1 Vp-p	IC101 (UPPER) Pin 21 (LOWER) Pin 20		STILL (UPPER) 2 Vp-p (LOWER) 5 Vp-p
IC101 Pin 6		REC, EE 0.45 Vp-p	IC111 Pin 21		REC, EE 1 Vp-p
IC101 Pin 2		REC, EE 1.3 Vp-p	IC111 Pin 3		REC, EE 0.14 Vp-p
IC101 Pin 30		REC, EE 1.5 Vp-p	IC111 Pin 9		REC, EE 0.8Vp-p
IC101 Pin 26		PB 0.8 Vp-p	Q1105 Base		PB 0.1 Vp-p
IC101 Pin 7		PB 2.0 Vp-p	Q1106 Emitter		PB 1.2 Vp-p
Q1002 Base		PB 0.5 Vp-p	IC111 Pin 7		PB 0.5 Vp-p
IC101 Pin 9		PB 0.6 Vp-p	IC111 Pin 5		PB 1.2 Vp-p
IC101 Pins 10/12		PB 0.5 Vp-p	IC111 Pin 24		PB 0.22 Vp-p
IC101 Pin 21		PB 2 Vp-p	IC111 Pin 23		PB 0.6 Vp-p

9-5. VP-1 BOARD (VP-A) VIDEO PRE-AMP CIRCUIT DIAGRAM

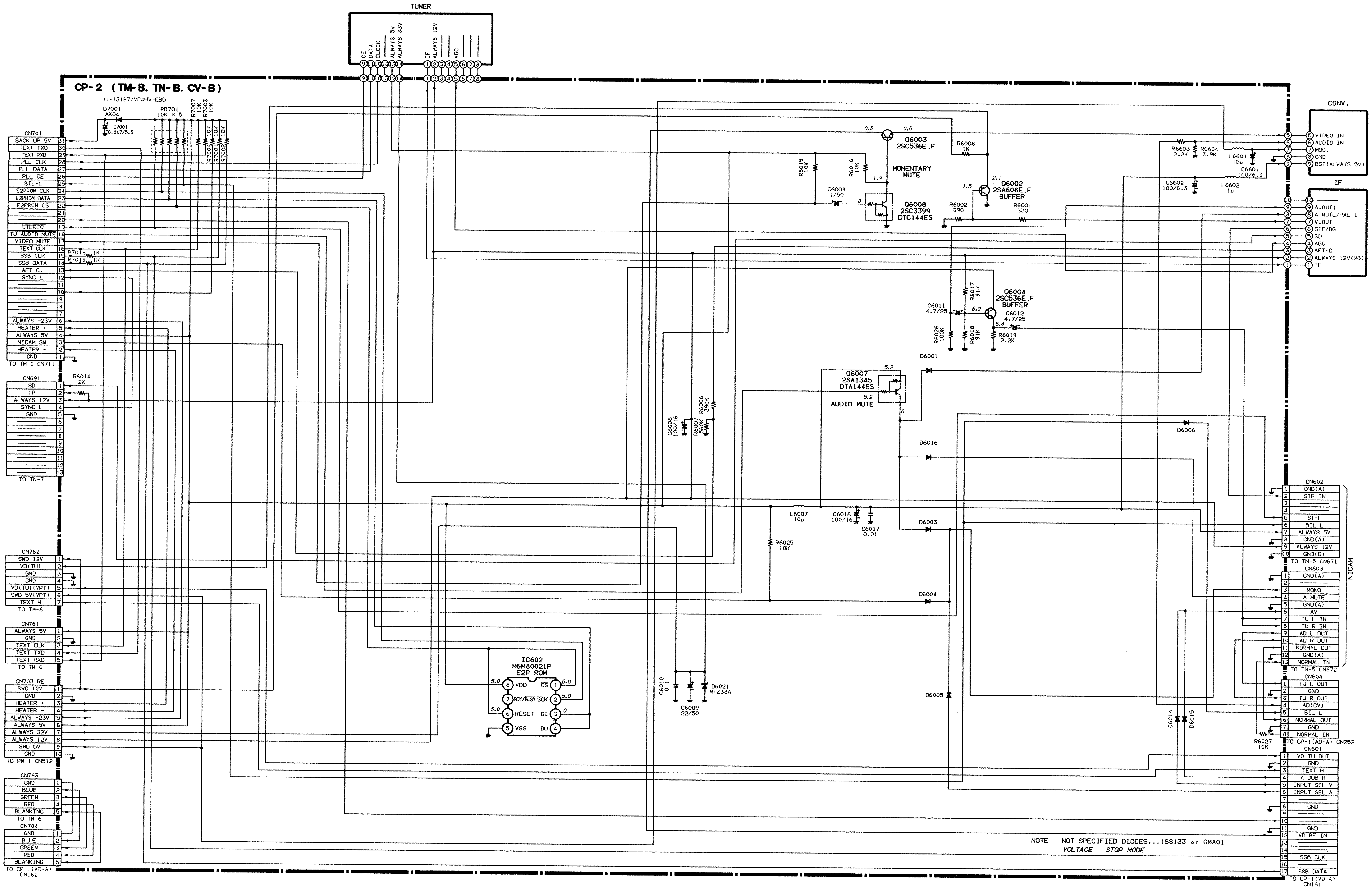

VP-A
V2-13120/YP4HV-GSE
REC 12V
AF+(CH-1)
AF COMMON
AF-(CH-2)
TO AP-A
CN183
AF-(CH-2)
COMMON
AF+(CH-1)
GND
SP CH-1
SP COM
SP CH-2
LP CH-2
LP COM
LP CH-1
TO DRUM
C1808 0.033
C1891 1/50
R1891 22
R1805 120
C1807 0.033
C1805 1/50
R1804 220
R1803 22
C1801 2200P
C1892 0.033
REC CURRENT
R1802 6.8
TP181
C1893 0.033
C1802 2200P
C1803 2200P
C1804 0.033
C1896 0.033
C1806 2200P
CURRENT AMP
CURRENT AMP
Y/C MIX
REC+B
LP REC ON
SWP
ENV
SP
COMP
LP
HA
PB
H
L
IC181 LA7321
VIDEO PRE-AMP
C1820 6.8/16 (0.S)
C1814 0.033
R1806 270
C1815 0.01
C1816 0.01
R1892 4.7K
ENV.
TP182
C1812 0.01
R1801 1.8K
C1813 0.01
C1895 1000P
C1817 1000P
C1818 4.7/10
Q1896 2SC3395 INV.
Q1894 2SC3395 INV.
Q1895 2SC3395 INV.
Q1893 2SC3395 INV.
R1896 5.6K
R1894 5.6K
R1895 4.7K
R1897 4.7K
VOLTAGE : REC(PLAY) MODE
Q1872 2SA1179 BUFFER
R1874 1.8K
R1854 390
R1852 22K
C1854 47P
R1858 820
L1853 15µ
R1851 390
C1851 0.01
C1852 33P
L1851 5.6µ
R1853 22K
C1853 33P
L1852 56µ
R1857 820
R1856 1K
R1855 390
C1855 68P
R1860 330
R1859 1K
L1854 15µ
Q1851 2SC2814
Q1852 2SC2814
EQ AMP
Q1855 2SC2812 BUFFER
R1869 1K
C1861 0.1
TP183
RF SW P
CN181
REC 12V
REC C
GND
REC Y
PB Y
PB 5V
PB C
RF SW P
TO VD-A(CP-1) CN101
CN182
S.PLAY
LP H
H AMP SW
ENV SW
SWD 5V
TO SV-A(CP-1) CN354

9-6. TM-6 BOARD VIDEO TEXT DECODER (VPT) CIRCUIT DIAGRAM



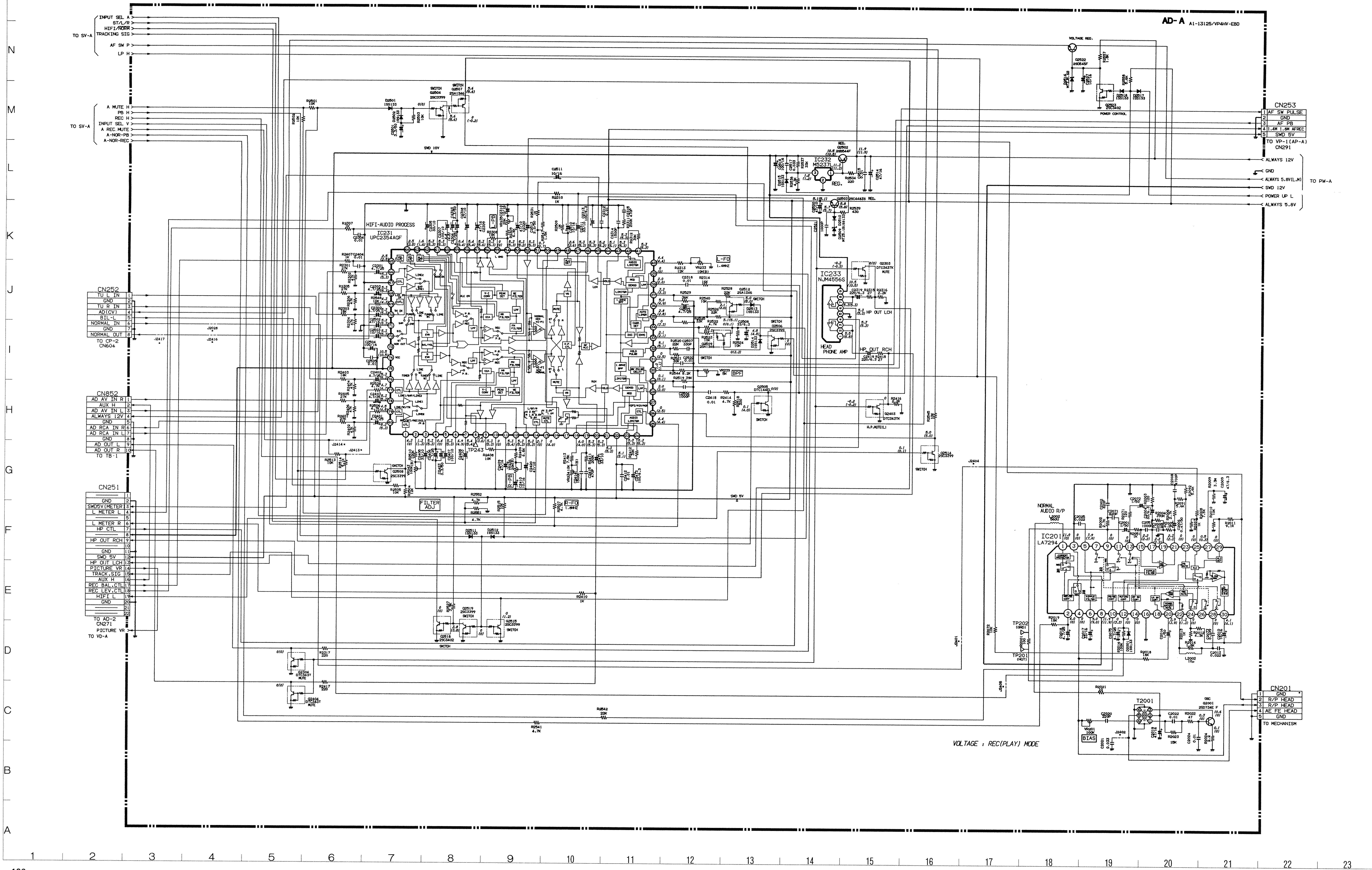
TM-6
T6-13106/VP4HV-G
IC764 TC74HC373P LACH
IC762 TMS27PC512-20N P-ROM
IC763 LH5164N-10L S-RAM
IC761 P8031AH MAIN-CONTROLLER
IC765 MN1280 R RESET
B7601 2SC3398 SWITCH
IC766 SDA5231 TEXT DATA SLICER
IC767 SDA5243 TEXT-DECODER
IC768 LH5164N-10L S-RAM
IC769 MC1378P R.G.B. ENCODER
Q7601 2SC2812L5,6 RESET INVERTER
Q7602 2SC2812L5,6 SWITCH
Q7651 2SA1179M5,6 INPUT VIDEO BUFFER
Q7658 2SA1179M5,6 BUFFER
Q7653 2SC2812L5,6 SWITCH CONTROL
Q7657 2SC2812L5,6 BLANKING BUFFER
Q7654 2SA1179M5,6 R-BUFFER
Q7655 2SA1179M5,6 G-BUFFER
Q7656 2SA1179M5,6 B-BUFFER
Q7660 2SC2812L5,6 RGB SWITCH
Q7659 2SA1179M5,6 BUFFER
CN761 YL
ALWAYS 5V
GND
TEXT CLK
TEXT RXD
TEXT TXD
TO CP-2
CN762 RE
SWD 12V
VD(TU)
GND
GND
VD(TU)(VPT)
SWD 5V(VPT)
TEXT H
TO CP-2
CN763
GND
BLUE
GREEN
RED
BLANKING
TO CP-2
D7602 AK04
C7601 0.047F/5.5
C7602 47/10
C7603 470/6.3
C7604 0.01
C7605 0.01
C7606 0.01
R7607 10K
C7610 0.01
L7604 10μ
R7618 10K
R7617 10K
R7626 10K
R7638 10K
R7616 10K
R7615 10K
R7601 1K
R7602 1K
R7603 1K
L7606 CORE
X7601 12MHz
R7604 220
C7609 10μ/16
R7605 33K
R7606 33K
D7603 DAP202K
L7601 10μ
L7602 10μ
C7642 0.01
C7643 0.01
XF765
XF763
XF764
D7659 DAP202K
R7629 4.7K
R7633 1.8K
R7645 100
R7646 1.8K
C7651 2.2/50 (NP)
R7651 2K
C7652 15P
C7653 0.001
C7654 470P
C7655 0.022
C7656 270P
C7657 100P
R7692 10K
X7651 13.875MHz
C7658 15P
C7659 27P
L7651 15μH
C7660 0.33
C7661 0.033
R7652 3.3K
C7646 47/16
R7653 560
C7662 1/50
C7663 10/16
C7664 0.033
C7665 18P
C7666 22P
R7654 330
X7652 6MHz
C7667 220P
R7655 56K
C7668 0.068
C7669 47/16
C7670 0.01
C7672 47/10
C7671 0.01
C7625 47/10
C7673 0.01
L7607 10μ
R7669 270
R7670 270
R7671 270
R7610 56K
R7611 56K
R7632 2.2K
R7612 1M
C7677 0.022
R7636 1.8K
C7644 1/50
C7678 47P
X7654 4MHZ
R7637 680
C7679 0.001
R7624 18K
C7680 1/50
C7761 10PF
X7653 17.73MHZ
L7605 2.2μH
R7641 1M
R7627 1M
C7681 0.1
C7684 0.1
C7676 22/16
C7675 22/16
C7674 22/16
R7662 270
C7686 0.01
XF761 4.43MHZ
C7685 1/50
C7687 0.001
R7623 2.7K
R7659 1K
XF762 3MHZ
R7660 1K
R7650 10K
D7660 DAP202K
C7696 0.047
R7649 47
C7695 0.1
R7625 470K
C7699 0.33
C7698 0.0047
C7689 4.7/25(N.P)
C7691 1/50
C7688 1/50
R7631 4.7K
C7682 47/10
C7683 0.01
R7614 100
R7619 75
R7661 10K
C7640 15P
R7634 27K
R7635 10K
R7676 180
C7692 100/16
R7677 75
R7672 680
R7673 1K
R7674 360
R7675 620
R7642 2.2K
R7644 10K
R7640 75
R7699 180
D7657 DAP202K
R7643 4.3K
R7621 4.7K
C7693 100/16
R7683 75
R7682 180
R7678 680
R7679 1K
R7680 360
R7681 620
C7694 100/16
R7698 75
R7697 180
R7693 680
R7694 1K
R7695 360
R7696 620
R7620 3.3K
R7666 100
R7668 1.8K
VOLTAGE : TEXT MODE
K
J
I
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15

9-7. CP-2 BOARD CONNECTOR CIRCUIT DIAGRAM

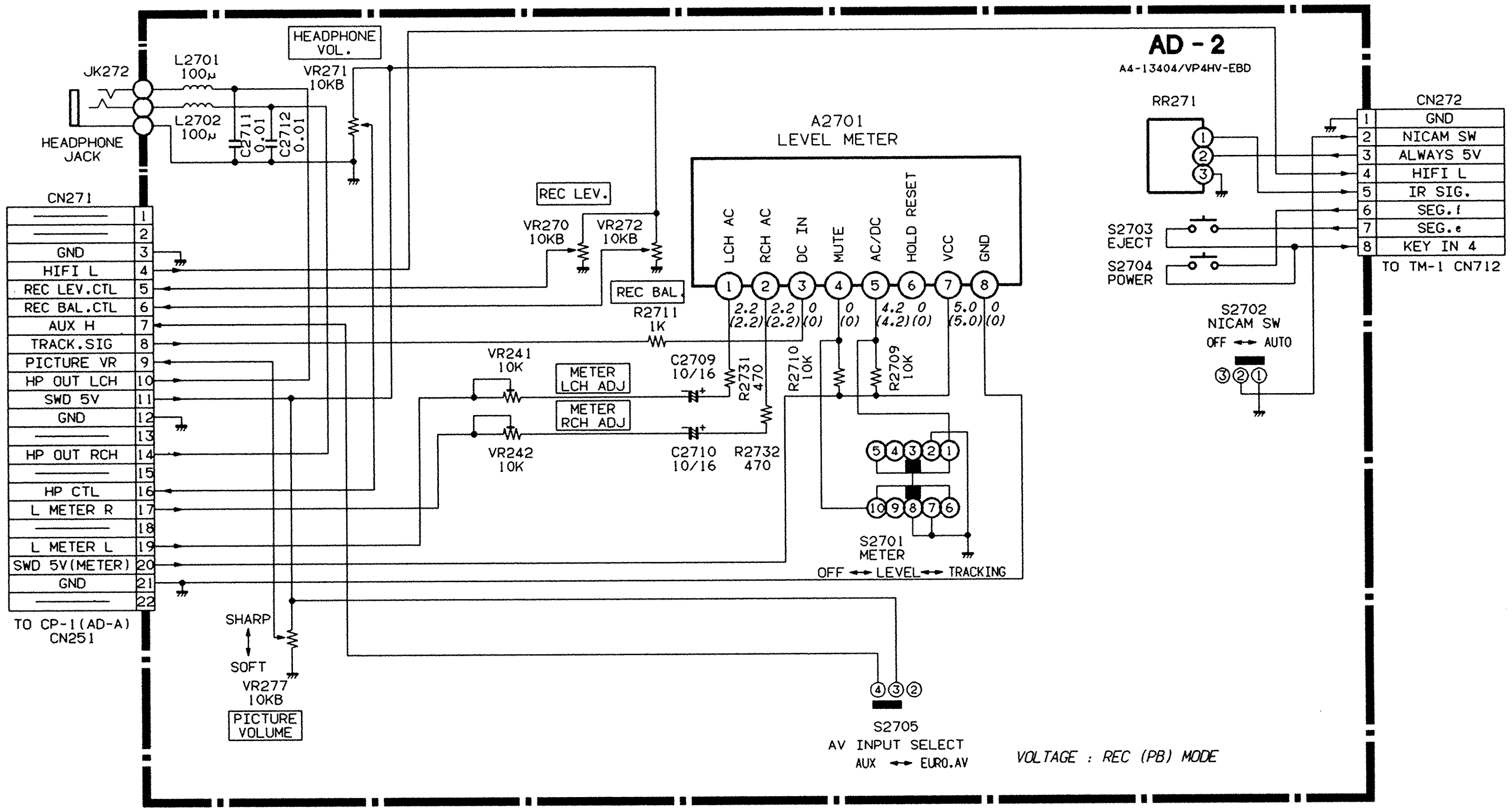

TUNER
CE
DATA
CLOCK
ALWAYS 5V
ALWAYS 33V
IF
ALWAYS 12V
AGC
CP-2 (TM-B. TN-B. CV-B)
U1-13167/VP4HV-EBD
D7001
AK04
C7001
0.047/5.5
RB701
10K × 5
R7007 10K
R7003 10K
R7004 10K
R7001 10K
R7002 10K
CN701
BACK UP 5V 31
TEXT TXD 30
TEXT RXD 29
PLL CLK 28
PLL DATA 27
PLL CE 26
BIL-L 25
E2PROM CLK 24
E2PROM DATA 23
E2PROM CS 22
21
20
STEREO 19
TU AUDIO MUTE 18
VIDEO MUTE 17
TEXT CLK 16
SSB CLK 15
SSB DATA 14
AFT C. 13
SYNC L 12
11
10
9
8
7
ALWAYS -23V 6
HEATER + 5
ALWAYS 5V 4
NICAM SW 3
HEATER - 2
GND 1
TO TM-1 CN711
R7018 1K
R7019 1K
CN691
SD 1
TP 2
ALWAYS 12V 3
SYNC L 4
GND 5
6
7
8
9
10
11
12
13
TO TN-7
R6014
2K
CN762
SWD 12V 1
VD(TU) 2
GND 3
GND 4
VD(TU)(VPT) 5
SWD 5V(VPT) 6
TEXT H 7
TO TN-6
CN761
ALWAYS 5V 1
GND 2
TEXT CLK 3
TEXT TXD 4
TEXT RXD 5
TO TM-6
CN703 RE
SWD 12V 1
GND 2
HEATER + 3
HEATER - 4
ALWAYS -23V 5
ALWAYS 5V 6
ALWAYS 32V 7
ALWAYS 12V 8
SWD 5V 9
GND 10
TO PW-1 CN512
CN763
GND 1
BLUE 2
GREEN 3
RED 4
BLANKING 5
TO TM-6
CN704
GND 1
BLUE 2
GREEN 3
RED 4
BLANKING 5
TO CP-1(VD-A) CN162
IC602
M6M80021P
E2P ROM
5.0
8 VDD
CS 1
5.0
7 RDY/BUSY SCK 2
5.0
5.0
6 RESET
DI 3
0
5 VSS
DO 4
0.5
0.5
Q6003
2SC536E,F
R6015 10K
R6016 10K
1.2
MOMENTARY MUTE
C6008
1/50
0
Q6008
2SC3399
DTC144ES
R6008
1K
1.5
2.1
Q6002
2SA608E,F
BUFFER
R6002
390
R6001
330
R6617 91K
C6011
4.7/25
6.0
Q6004
2SC536E,F
BUFFER
C6012
4.7/25
5.4
R6026 100K
R6018 91K
R6019
2.2K
D6001
Q6007
2SA1345
DTA144ES
5.2
5.2
AUDIO MUTE
0
C6006 100/16
R6007 56K
R6006 390K
D6016
D6006
D6003
L6007
10μ
C6016
100/16
C6017
0.01
R6025
10K
D6004
C6010
0.1
C6009
22/50
D6021
MTZ33A
D6005
D6014
D6015
R6603
2.2K
R6604
3.9K
L6601
15μ
C6601
100/6.3
C6602
100/6.3
L6602
1μ
CONV.
5 VIDEO IN
6 AUDIO IN
7 MOD.
8 GND
9 BST(ALWAYS 5V)
IF
10
9 A.OUT1
8 A MUTE/PAL-I
7 V.OUT
6 SIF/BG
5 SD
4 AGC
3 AFT-C
2 ALWAYS 12V(MB)
1 IF
CN602
1 GND(A)
2 SIF IN
3
4
5 ST-L
6 BIL-L
7 ALWAYS 5V
8 GND(A)
9 ALWAYS 12V
10 GND(D)
TO TN-5 CN671
CN603
1 GND(A)
2
3 MONO
4 A MUTE
5 GND(A)
6 AV
7 TU L IN
8 TU R IN
9 AD L OUT
10 AD R OUT
11 NORMAL OUT
12 GND(A)
13 NORMAL IN
TO TN-5 CN672
NICAM
CN604
1 TU L OUT
2 GND
3 TU R OUT
4 AD(CV)
5 BIL-L
6 NORMAL OUT
7 GND
8 NORMAL IN
TO CP-1(AD-A) CN252
R6027
10K
CN601
1 VD TU OUT
2 GND
3 TEXT H
4 A DUB H
5 INPUT SEL V
6 INPUT SEL A
7
8 GND
9
10
11 GND
12 VD RF IN
13
14
15 SSB CLK
16
17 SSB DATA
TO CP-1(VD-A) CN161
O
N
M
L
K
J
I
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23

NOTE NOT SPECIFIED DIODES...1SS133 or GMA01
VOLTAGE STOP MODE

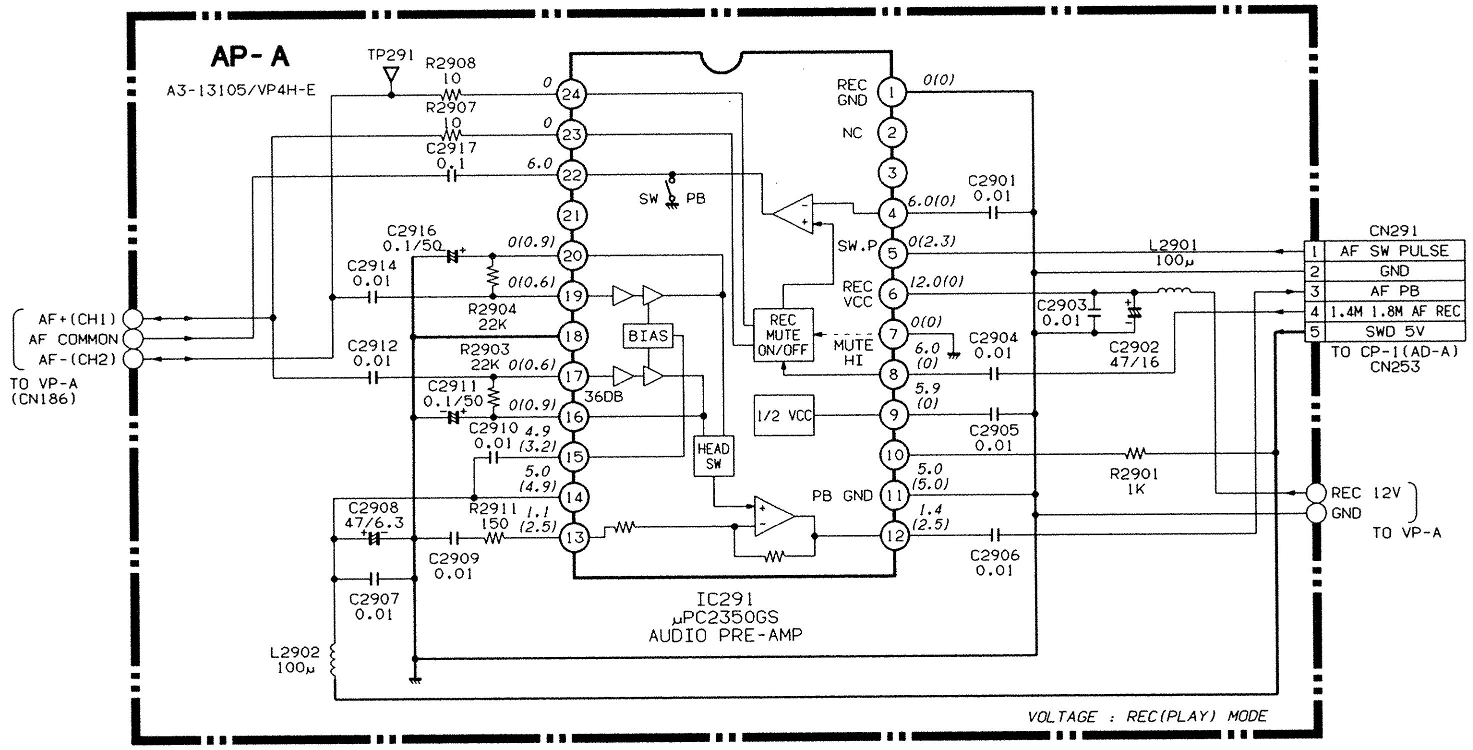
9-8. CP-1 BOARD (AD-A) AUDIO CIRCUIT DIAGRAM


AD-A A1-13125/VP4HV-EBD
TO SV-A
INPUT SEL A
ST/L/R
HIFI/NORM
TRACKING SIG
AF SW P
LP H
A MUTE H
PB H
REC H
INPUT SEL V
A REC MUTE
A-NOR-PB
A-NOR-REC
CN252
TU L IN
GND
TU R IN
AD(CV)
BIL-L
NORMAL IN
GND
NORMAL OUT
TO CP-2 CN604
CN852
AD AV IN R
AUX H
AD AV IN L
ALWAYS 12V
GND
AD RCA IN R
AD RCA IN L
GND
AD OUT L
AD OUT R
TO TB-1
CN251
GND
SWD5V(METER)
L METER L
L METER R
HP CTL
HP OUT RCH
GND
SWD 5V
HP OUT LCH
PICTURE VR
TRACK.SIG
AUX H
REC BAL.CTL
REC LEV.CTL
HIFI L
GND
TO AD-2 CN271
PICTURE VR
TO VD-A
HIFI-AUDIO PROCESS
IC231 UPC2354AGF
IC232 M5237L
REG.
IC233 NJM4556S
HEAD PHONE AMP
HP OUT LCH
HP OUT RCH
L-FO
R-FO
BPF
FILTER ADJ
TP243
IC201 LA7294
NORMAL AUDIO R/P
TP202 (GND)
TP201 (HOT)
T2001
BIAS
CN253
AF SW PULSE
GND
AF PB
1.4M 1.8M AFREC
SWD 5V
TO VP-1(AP-A) CN291
ALWAYS 12V
GND
ALWAYS 5.8V(L.M)
SWD 12V
POWER UP L
ALWAYS 5.8V
TO PW-A
CN201
GND
R/P HEAD
R/P HEAD
AE FE HEAD
GND
TO MECHANISM
VOLTAGE : REC(PLAY) MODE
O N M L K J I H G F E D C B A
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23

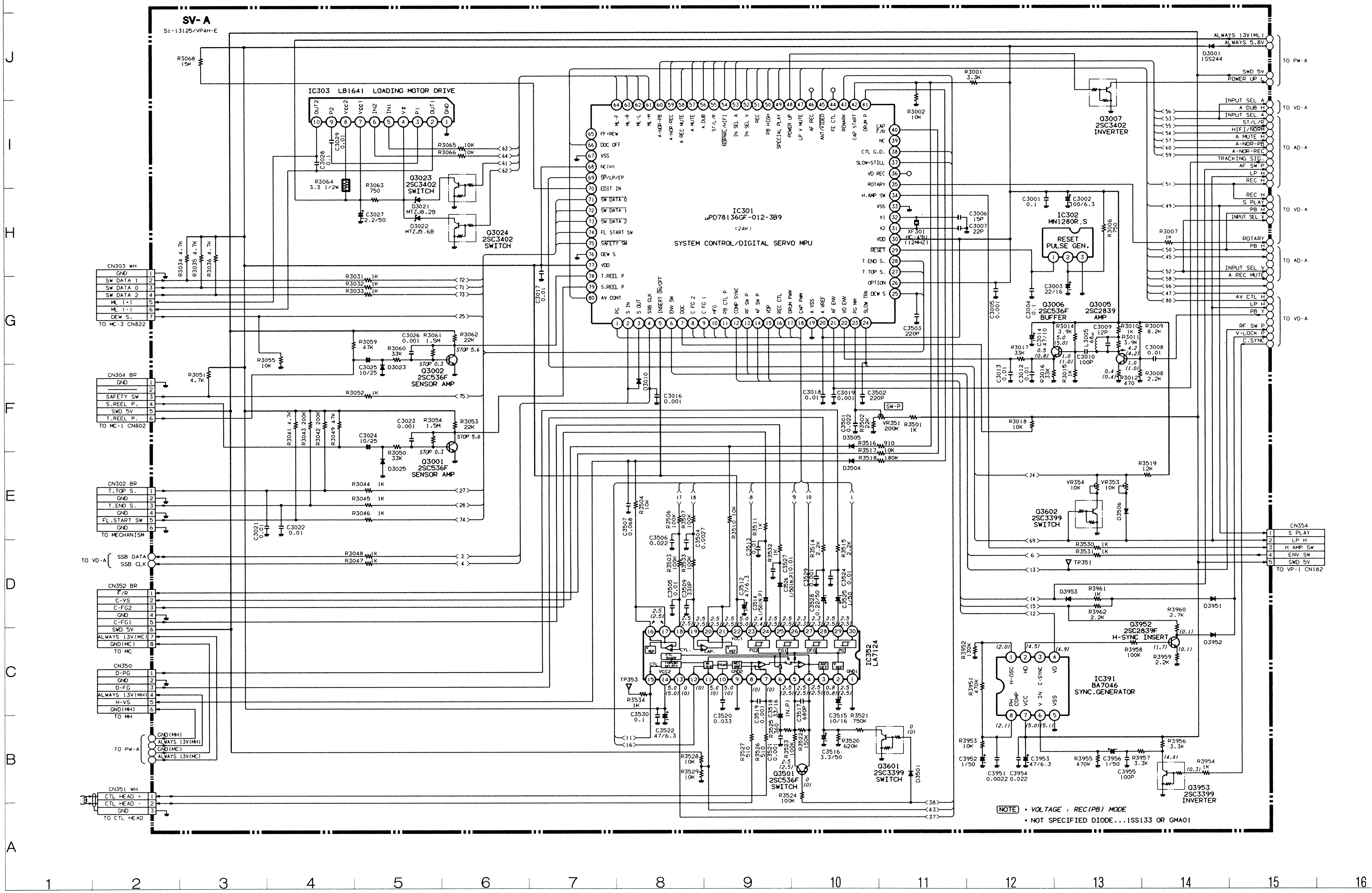
9-9. AD-2 BOARD AUDIO LEVEL METER CIRCUIT DIAGRAM


AD - 2
A4-13404/VP4HV-EBD
JK272
HEADPHONE JACK
L2701 100μ
L2702 100μ
C2711 0.01
C2712 0.01
HEADPHONE VOL.
VR271 10KB
REC LEV.
VR270 10KB
VR272 10KB
REC BAL.
R2711 1K
A2701 LEVEL METER
LCH AC
RCH AC
DC IN
MUTE
AC/DC
HOLD RESET
VCC
GND
2.2 (2.2)
2.2 (2.2)
0 (0)
0 (0)
4.2 (4.2)
0 (0)
5.0 (5.0)
0 (0)
VR241 10K
METER LCH ADJ
METER RCH ADJ
VR242 10K
C2709 10/16
C2710 10/16
R2731 470
R2732 470
R2710 10K
R2709 10K
S2701 METER
OFF ↔ LEVEL ↔ TRACKING
CN271
1
2
3 GND
4 HIFI L
5 REC LEV.CTL
6 REC BAL.CTL
7 AUX H
8 TRACK.SIG
9 PICTURE VR
10 HP OUT LCH
11 SWD 5V
12 GND
13
14 HP OUT RCH
15
16 HP CTL
17 L METER R
18
19 L METER L
20 SWD 5V(METER)
21 GND
22
TO CP-1(AD-A) CN251
SHARP
SOFT
VR277 10KB
PICTURE VOLUME
S2705
AV INPUT SELECT
AUX ↔ EURO.AV
RR271
S2703 EJECT
S2704 POWER
S2702 NICAM SW
OFF ↔ AUTO
CN272
1 GND
2 NICAM SW
3 ALWAYS 5V
4 HIFI L
5 IR SIG.
6 SEG.f
7 SEG.e
8 KEY IN 4
TO TM-1 CN712
VOLTAGE : REC (PB) MODE

9-10. VP-1 BOARD (AP-A) AUDIO PRE-AMP CIRCUIT DIAGRAM

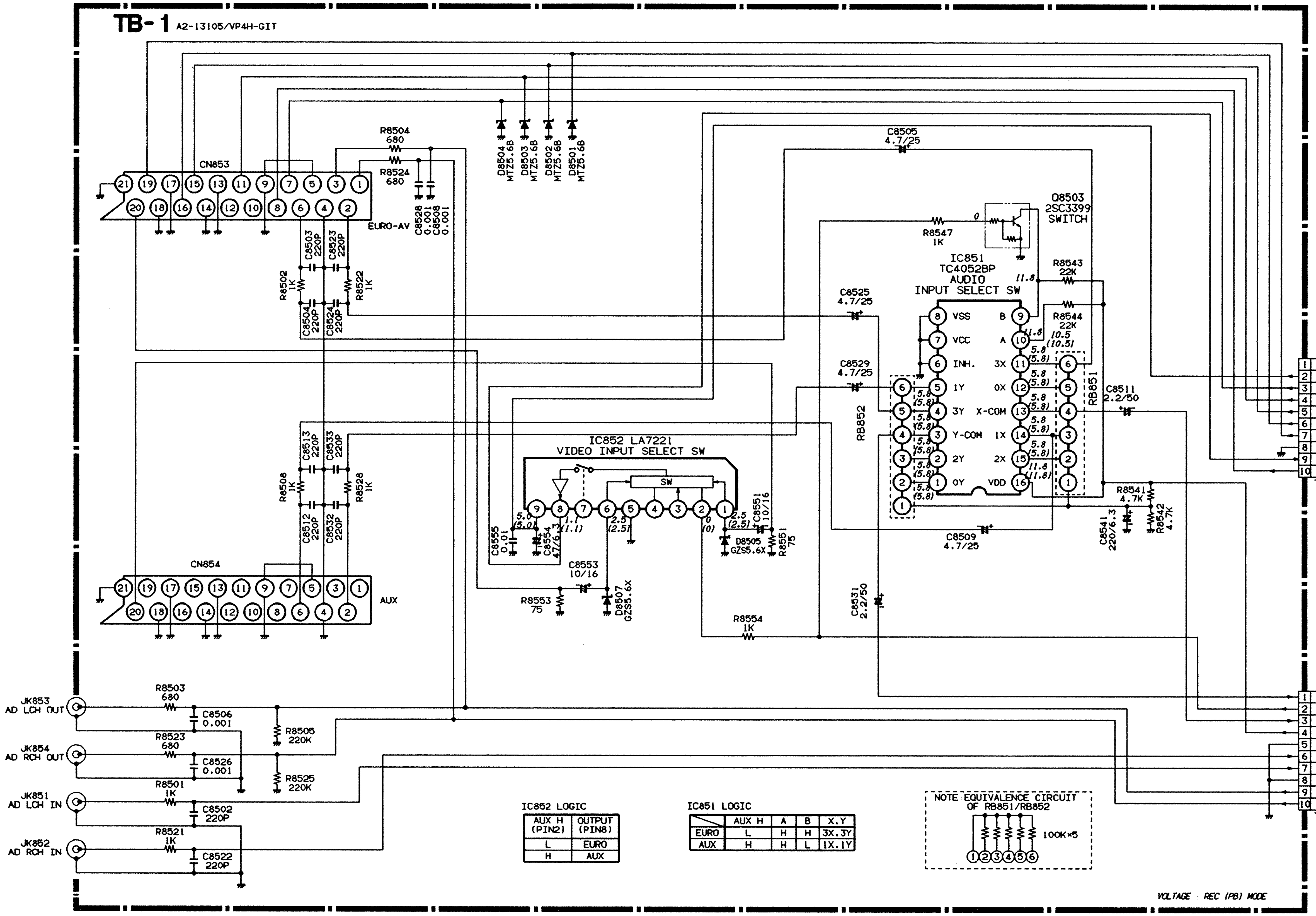

AP- A
A3-13105/VP4H-E
TP291
R2908 10
R2907 10
C2917 0.1
C2916 0.1/50
C2914 0.01
R2904 22K
C2912 0.01
R2903 22K
C2911 0.1/50
C2910 0.01
C2908 47/6.3
R2911 150
C2909 0.01
C2907 0.01
L2902 100μ
AF+(CH1)
AF COMMON
AF-(CH2)
TO VP-A (CN186)
SW PB
BIAS
36DB
HEAD SW
REC MUTE ON/OFF
1/2 VCC
REC GND
NC
SW.P
REC VCC
MUTE HI
PB GND
IC291
μPC2350GS
AUDIO PRE-AMP
C2901 0.01
L2901 100μ
C2903 0.01
C2902 47/16
C2904 0.01
C2905 0.01
R2901 1K
C2906 0.01
CN291
1 AF SW PULSE
2 GND
3 AF PB
4 1.4M 1.8M AF REC
5 SWD 5V
TO CP-1(AD-A) CN253
REC 12V
GND
TO VP-A
VOLTAGE : REC(PLAY) MODE

9-11. CP-1 BOARD (SV-A) SYSTEM CONTROL & SERVO CIRCUIT DIAGRAM


SV-A
S1-13125/VP4H-E
IC303 LB1641 LOADING MOTOR DRIVE
IC301 μPD78136GF-012-389 (24K)
SYSTEM CONTROL/DIGITAL SERVO MPU
IC302 MN1280R.S
RESET PULSE GEN.
IC352 LA7124
IC391 BA7046 SYNC.GENERATOR
Q3023 2SC3402 SWITCH
Q3024 2SC3402 SWITCH
Q3002 2SC536F SENSOR AMP
Q3001 2SC536F SENSOR AMP
Q3007 2SC3402 INVERTER
Q3006 2SC536F BUFFER
Q3005 2SC2839 AMP
Q3602 2SC3399 SWITCH
Q3952 2SC2839F H-SYNC INSERT
Q3953 2SC3399 INVERTER
Q3501 2SC536F SWITCH
Q3601 2SC3399 SWITCH
XF301 HC-49U (12MHZ)
CN303 WH
GND
SW DATA 1
SW DATA 0
SW DATA 2
ML (+)
ML (-)
DEW S.
TO MC-3 CN822
CN304 BR
GND
SAFETY SW
S.REEL P.
SWD 5V
T.REEL P.
TO MC-1 CN802
CN302 BR
T.TOP S.
GND
T.END S.
GND
FL.START SW
GND
TO MECHANISM
TO VD-A
SSB DATA
SSB CLK
CN352 BR
F/R
C-VS
C-FG2
GND
C-FG1
SWD 5V
ALWAYS 13V(MC)
GND(MC)
TO MC
CN350
D-PG
GND
D-FG
ALWAYS 13V(MH)
H-VS
GND(MH)
TO MH
TO PW-A
GND(MH)
ALWAYS 13V(MH)
GND(MC)
ALWAYS 13V(MC)
CN351 WH
CTL HEAD +
CTL HEAD -
GND
TO CTL HEAD
ALWAYS 13V(ML)
ALWAYS 5.8V
SWD 5V
POWER UP L
TO PW-A
INPUT SEL A
A DUB H
INPUT SEL A
TO VD-A
ST/L/R
HIFI/NORM
A MUTE H
A-NOR-PB
A-NOR-REC
TRACKING SIG.
AF SW P
LP H
REC H
TO AD-A
REC H
S PLAY
PB H
INPUT SEL V
TO VD-A
ROTARY
PB H
TO AD-A
INPUT SEL V
A REC MUTE
AV CTL H
LP H
PB Y
TO VD-A
RF SW P
V-LOCK P
C.SYNC
CN354
S PLAY
LP H
H AMP SW
ENV SW
SWD 5V
TO VP-1 CN182
TP351
TP353
SW-P
K
J
I
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16

NOTE • VOLTAGE : REC(PB) MODE
• NOT SPECIFIED DIODE...1SS133 OR GMA01

9-12. TB-1 BOARD TERMINAL & INPUT SELECT CIRCUIT DIAGRAM


TB-1
A2-13105/VP4H-GIT
CN853
EURO-AV
R8504 680
R8524 680
C8528 0.001
C8508 0.001
D8504 MTZ5.6B
D8503 MTZ5.6B
D8502 MTZ5.6B
D8501 MTZ5.6B
C8503 220P
C8523 220P
R8502 1K
R8522 1K
C8504 220P
C8524 220P
C8505 4.7/25
Q8503 2SC3399 SWITCH
R8547 1K
IC851 TC4052BP AUDIO INPUT SELECT SW
VSS
VCC
INH.
1Y
3Y
Y-COM
2Y
0Y
B
A
3X
0X
X-COM
1X
2X
VDD
R8543 22K
R8544 22K
RB851
RB852
C8525 4.7/25
C8529 4.7/25
C8511 2.2/50
C8509 4.7/25
R8541 4.7K
R8542 4.7K
C8541 220/6.3
C8513 220P
C8533 220P
R8508 1K
R8528 1K
C8512 220P
C8532 220P
IC852 LA7221 VIDEO INPUT SELECT SW
SW
C8555 0.01
C8554 47/6.3
C8553 10/16
C8551 10/16
D8505 GZS5.6X
D8507 GZS5.6X
R8551 75
R8553 75
R8554 1K
C8531 2.2/50
CN854
AUX
JK853 AD LCH OUT
JK854 AD RCH OUT
JK851 AD LCH IN
JK852 AD RCH IN
R8503 680
R8523 680
R8501 1K
R8521 1K
C8506 0.001
C8526 0.001
C8502 220P
C8522 220P
R8505 220K
R8525 220K
CN851
1 ———
2 SWD 5V
3 BLUE
4 GREEN
5 RED
6 BLANKING
7 VD AV OUT
8 GND
9 VD AV IN
10 F.S.S.
TO CP-1(VD-A)
CN852
1 AD AV IN R
2 AUX H
3 AD AV IN L
4 ALWAYS 12V
5 GND
6 AD RCA IN R
7 AD RCA IN L
8 GND
9 AD OUT L
10 AD OUT R
TO CP-1(AD-A)
NOTE: EQUIVALENCE CIRCUIT OF RB851/RB852
100K×5
VOLTAGE : REC (PB) MODE

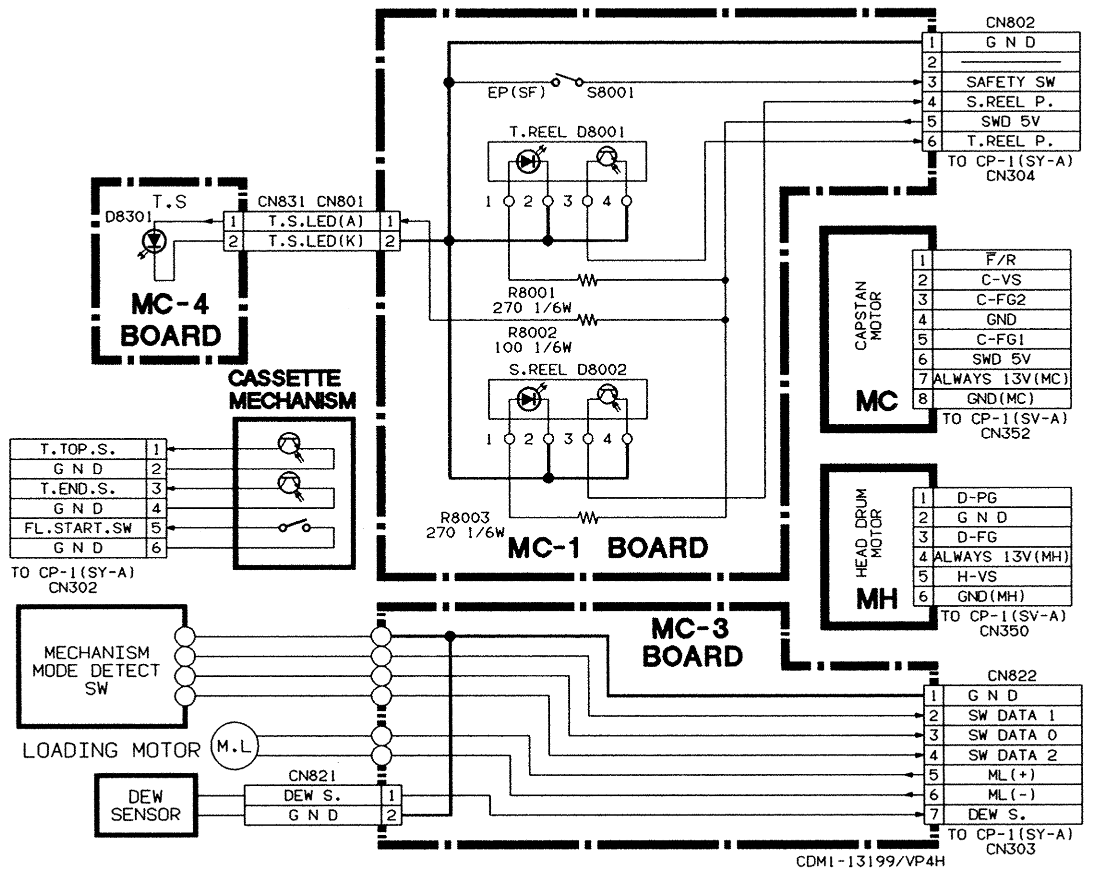
IC852 LOGIC

AUX H (PIN2)	OUTPUT (PIN8)
L	EURO
H	AUX

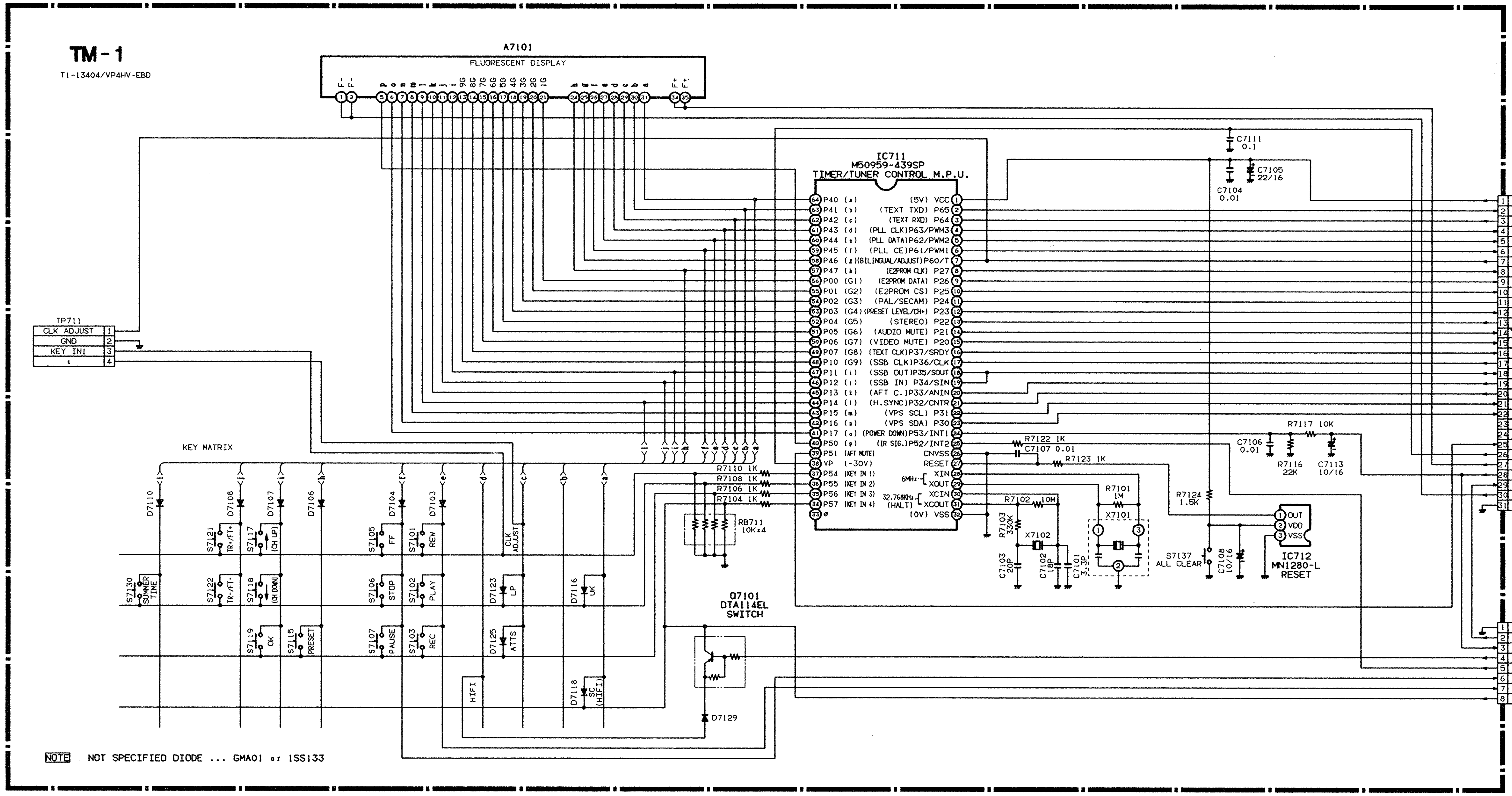
IC851 LOGIC

	AUX H	A	B	X.Y
EURO	L	H	H	3X.3Y
AUX	H	H	L	1X.1Y

9-13. MECHANISM CONNECTION CIRCUIT DIAGRAM

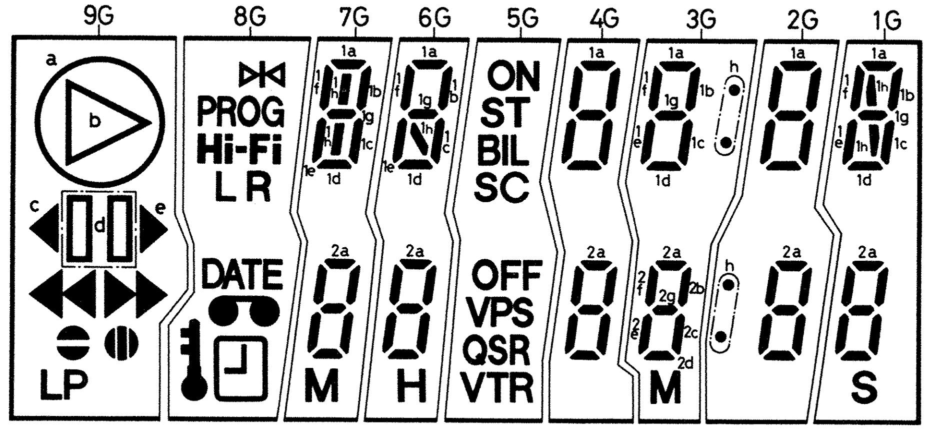

CN802
1 G N D
2 ———
3 SAFETY SW
4 S.REEL P.
5 SWD 5V
6 T.REEL P.
TO CP-1(SY-A) CN304
EP(SF)
S8001
T.REEL D8001
S.REEL D8002
R8001 270 1/6W
R8002 100 1/6W
R8003 270 1/6W
MC-1 BOARD
T.S
D8301
MC-4 BOARD
CN831 CN801
1 T.S.LED(A)
2 T.S.LED(K)
CASSETTE MECHANISM
1 T.TOP.S.
2 G N D
3 T.END.S.
4 G N D
5 FL.START.SW
6 G N D
TO CP-1(SY-A) CN302
CAPSTAN MOTOR
MC
1 F/R
2 C-VS
3 C-FG2
4 GND
5 C-FG1
6 SWD 5V
7 ALWAYS 13V(MC)
8 GND(MC)
TO CP-1(SV-A) CN352
HEAD DRUM MOTOR
MH
1 D-PG
2 G N D
3 D-FG
4 ALWAYS 13V(MH)
5 H-VS
6 GND(MH)
TO CP-1(SV-A) CN350
MC-3 BOARD
MECHANISM MODE DETECT SW
LOADING MOTOR
M.L
DEW SENSOR
CN821
1 DEW S.
2 G N D
CN822
1 G N D
2 SW DATA 1
3 SW DATA 0
4 SW DATA 2
5 ML(+)
6 ML(-)
7 DEW S.
TO CP-1(SY-A) CN303
CDM1-13199/VP4H

9-14. TM-1 BOARD TIMER & TUNING CONTROL CIRCUIT DIAGRAM


TM-1
T1-L3404/VP4HV-EBD
A7101
FLUORESCENT DISPLAY
IC711
M50959-439SP
TIMER/TUNER CONTROL M.P.U.
64 P40 (a)
63 P41 (b)
62 P42 (c)
61 P43 (d)
60 P44 (e)
59 P45 (f)
58 P46 (g)
57 P47 (h)
56 P00 (G1)
55 P01 (G2)
54 P02 (G3)
53 P03 (G4)
52 P04 (G5)
51 P05 (G6)
50 P06 (G7)
49 P07 (G8)
48 P10 (G9)
47 P11 (i)
46 P12 (j)
45 P13 (k)
44 P14 (l)
43 P15 (m)
42 P16 (n)
41 P17 (o)
40 P50 (p)
39 P51 (AFT MUTE)
38 VP (-30V)
37 P54 (KEY IN 1)
36 P55 (KEY IN 2)
35 P56 (KEY IN 3)
34 P57 (KEY IN 4)
33 ø
(5V) VCC 1
(TEXT TXD) P65 2
(TEXT RXD) P64 3
(PLL CLK) P63/PWM3 4
(PLL DATA) P62/PWM2 5
(PLL CE) P61/PWM1 6
(BILINGUAL/ADJUST) P60/T 7
(E2PROM CLK) P27 8
(E2PROM DATA) P26 9
(E2PROM CS) P25 10
(PAL/SECAM) P24 11
(PRESET LEVEL/CH+) P23 12
(STEREO) P22 13
(AUDIO MUTE) P21 14
(VIDEO MUTE) P20 15
(TEXT CLK) P37/SRDY 16
(SSB CLK) P36/CLK 17
(SSB OUT) P35/SOUT 18
(SSB IN) P34/SIN 19
(AFT C.) P33/ANIN 20
(H.SYNC) P32/CNTR 21
(VPS SCL) P31 22
(VPS SDA) P30 23
(POWER DOWN) P53/INT1 24
(IR SIG.) P52/INT2 25
CNVSS 26
RESET 27
6MHz XIN 28
XOUT 29
32.768KHz (HALT) XCIN 30
XCOUT 31
(0V) VSS 32
TP711
1 CLK ADJUST
2 GND
3 KEY IN1
4 c
KEY MATRIX
D7110
D7108
D7107
D7106
D7104
D7103
S7121 TR+/FT+
S7117 (CH UP)
S7105 FF
S7101 REW
CLK ADJUST
S7130 SUMMER TIME
S7122 TR-/FT-
S7118 (CH DOWN)
S7106 STOP
S7102 PLAY
D7123 LP
D7116 UK
S7119 OK
S7115 PRESET
S7107 PAUSE
S7103 REC
D7125 ATTS
HIFI
D7118 SC (HIFI)
Q7101
DTA114EL
SWITCH
D7129
R7110 1K
R7108 1K
R7106 1K
R7104 1K
RB711 10K×4
C7111 0.1
C7105 22/16
C7104 0.01
R7122 1K
C7107 0.01
R7123 1K
R7102 10M
R7103 330K
X7102
C7103 20P
C7102 18P
C7101 3.3P
R7101 1M
X7101
R7117 10K
C7106 0.01
R7116 22K
C7113 10/16
R7124 1.5K
S7137 ALL CLEAR
C7108 10/16
IC712
MN1280-L
RESET
OUT
VDD
VSS
CN711
1 BACK UP 5V
2 TEXT TXD
3 TEXT RXD
4 PLL CLK
5 PLL DATA
6 PLL CE
7 BIL-L
8 E2PROM CLK
9 E2PROM DATA
10 E2PROM CE
13 STEREO
14 TU AUDIO MUTE
15 VIDEO MUTE
16 TEXT CLK
17 SSB CLK
18 SSB DATA
19 AFT C.
20 SYNC L
26 ALWAYS -23V
27 HEATER +
28 ALWAYS 5V
29 NICAM SW
30 HEATER -
31 GND
TO CP-2 CN701
CN712
1 GND
2 NICAM SW
3 ALWAYS 5V
4 HIFI L
5 IR SIG.
6 SEG.f
7 SEG.e
8 KEY IN4
TO AD-2 CN272

NOTE : NOT SPECIFIED DIODE ... GMA01 or 1SS133

A7001 DISPLAY GRID/ANODE ASSIGNMENT


9G
8G
7G
6G
5G
4G
3G
2G
1G
a
b
c
d
e
PROG
Hi-Fi
L R
DATE
ON
ST
BIL
SC
OFF
VPS
QSR
VTR
LP
M
H
M
S
1a
1b
1c
1d
1e
1g
1h
2a
2b
2c
2d
h

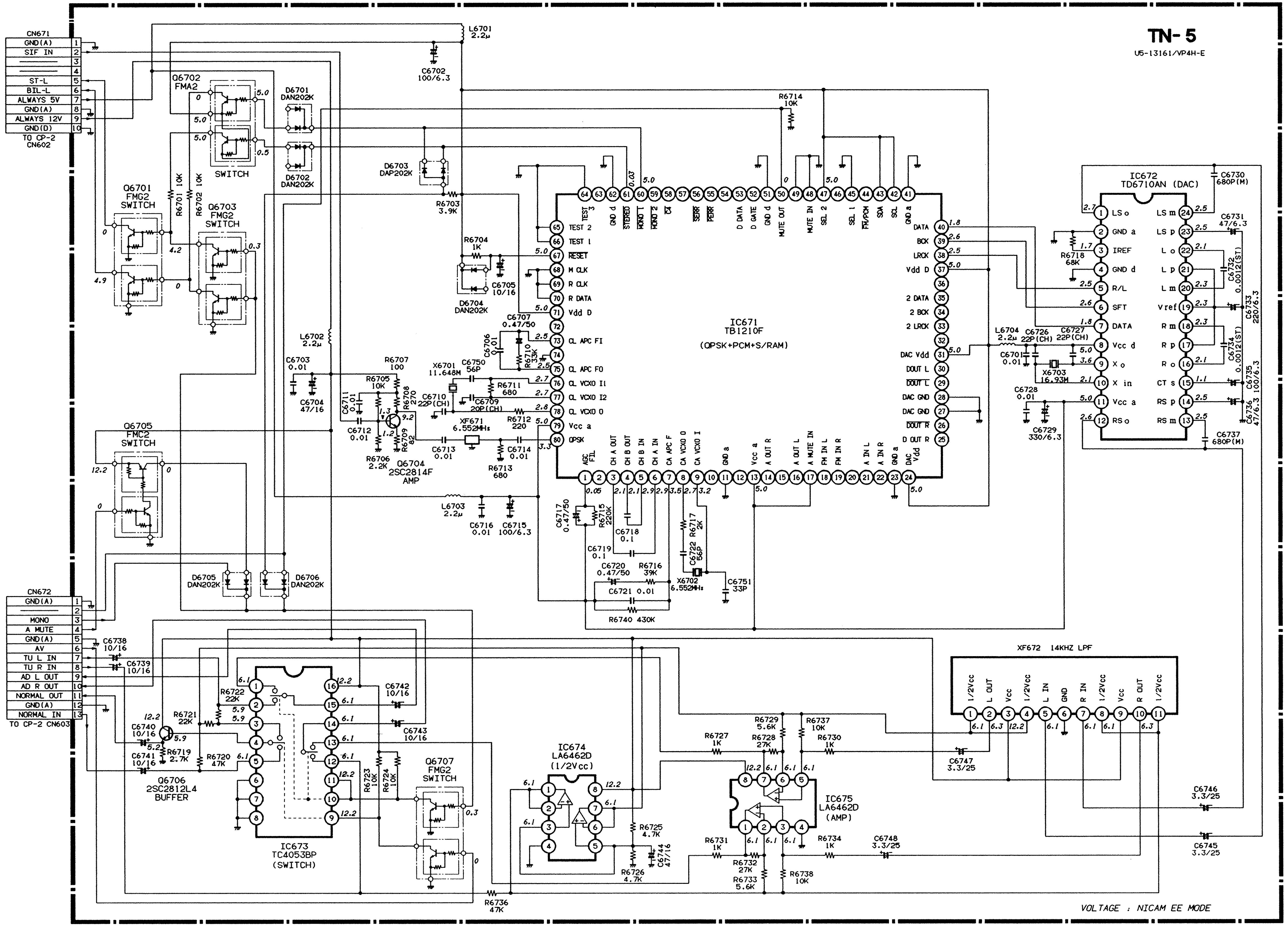
A7001 DISPLAY TABLE OF GRID/ANODE CONNECTION

	9G	8G	7G	6G	5G	4G	3G	2G	1G
a	○	¤	1a	1a	**ON**	1a	1a	1a	1a
b	▷	⋈	1b	1b	**ST**	1b	1b	1b	1b
c	◀	**PROG**	1c	1c	**BIL**	1c	1c	1c	1c
d	▯▯	**Hi-Fi**	1d	1d	**SC**	1d	1d	1d	1d
e	▶	**L**	1e	1e	–	1e	1e	1e	1e
f	–	**R**	1f	1f	–	1f	1f	1f	1f
g	–	–	1g	1g	–	1g	1g	1g	1g
h	–	–	1h	1h	–	–	: (UPPER)	: (LOWER)	1h
i	◀◀	**DATE**	2a	2a	**OFF**	2a	2a	2a	2a
j	▶▶	●●	2b	2b	**VPS**	2b	2b	2b	2b
k	⊖	🌡	2c	2c	**QSR**	2c	2c	2c	2c
l	◍	⌚	2d	2d	**VTR**	2d	2d	2d	2d
m	**LP**	–	2e	2e	–	2e	2e	2e	2e
n	**EP**	–	2f	2f	–	2f	2f	2f	2f
o	–	–	2g	2g	–	2g	2g	2g	2g
p	–	–	**M**	**H**	–	**H**	**M**	**M**	**S**

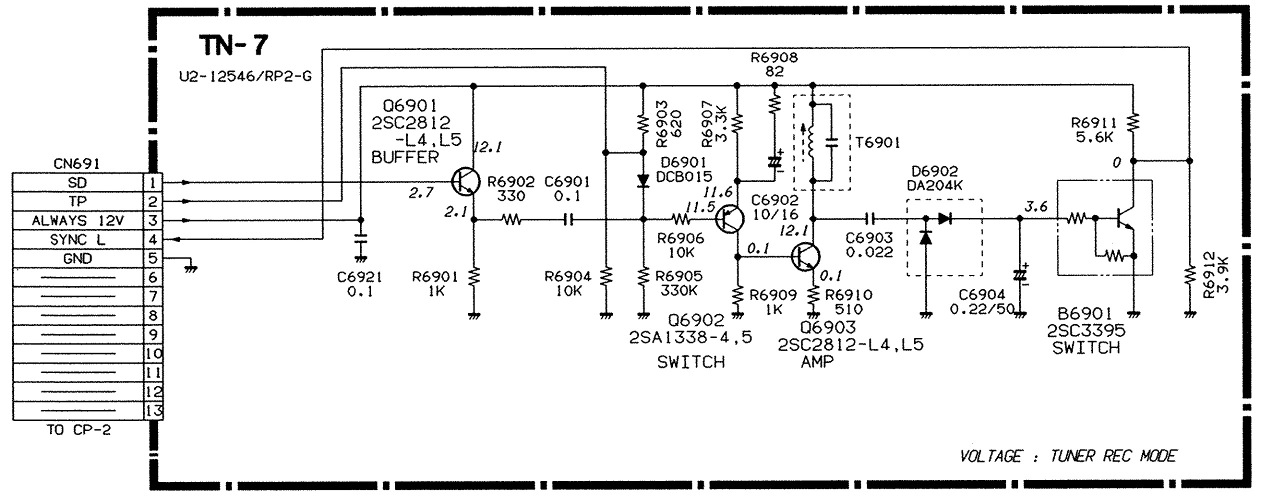
9G/QP

K J I H G F E D C B A

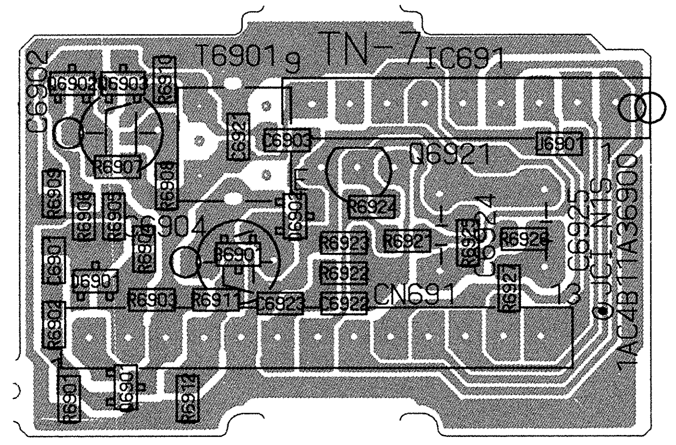
9-15. TN-5 BOARD NICAM DECODER CIRCUIT DIAGRAM


TN-5
U5-13161/VP4H-E
CN671
GND(A)
SIF IN
ST-L
BIL-L
ALWAYS 5V
GND(A)
ALWAYS 12V
GND(D)
TO CP-2 CN602
Q6702 FMA2
SWITCH
D6701 DAN202K
D6702 DAN202K
D6703 DAP202K
Q6701 FMG2 SWITCH
Q6703 FMG2 SWITCH
Q6705 FMC2 SWITCH
L6701 2.2μ
C6702 100/6.3
R6714 10K
IC671 TB1210F (QPSK+PCM+S/RAM)
D6704 DAN202K
X6701 11.648M
XF671 6.552MHz
Q6704 2SC2814F AMP
L6702 2.2μ
L6703 2.2μ
X6702 6.552MHz
R6740 430K
IC672 TD6710AN (DAC)
L6704 2.2μ
X6703 16.93M
D6705 DAN202K
D6706 DAN202K
CN672
GND(A)
MONO
A MUTE
GND(A)
AV
TU L IN
TU R IN
AD L OUT
AD R OUT
NORMAL OUT
GND(A)
NORMAL IN
TO CP-2 CN603
Q6706 2SC2812L4 BUFFER
IC673 TC4053BP (SWITCH)
Q6707 FMG2 SWITCH
IC674 LA6462D (1/2Vcc)
IC675 LA6462D (AMP)
XF672 14KHZ LPF
R6736 47K
VOLTAGE : NICAM EE MODE

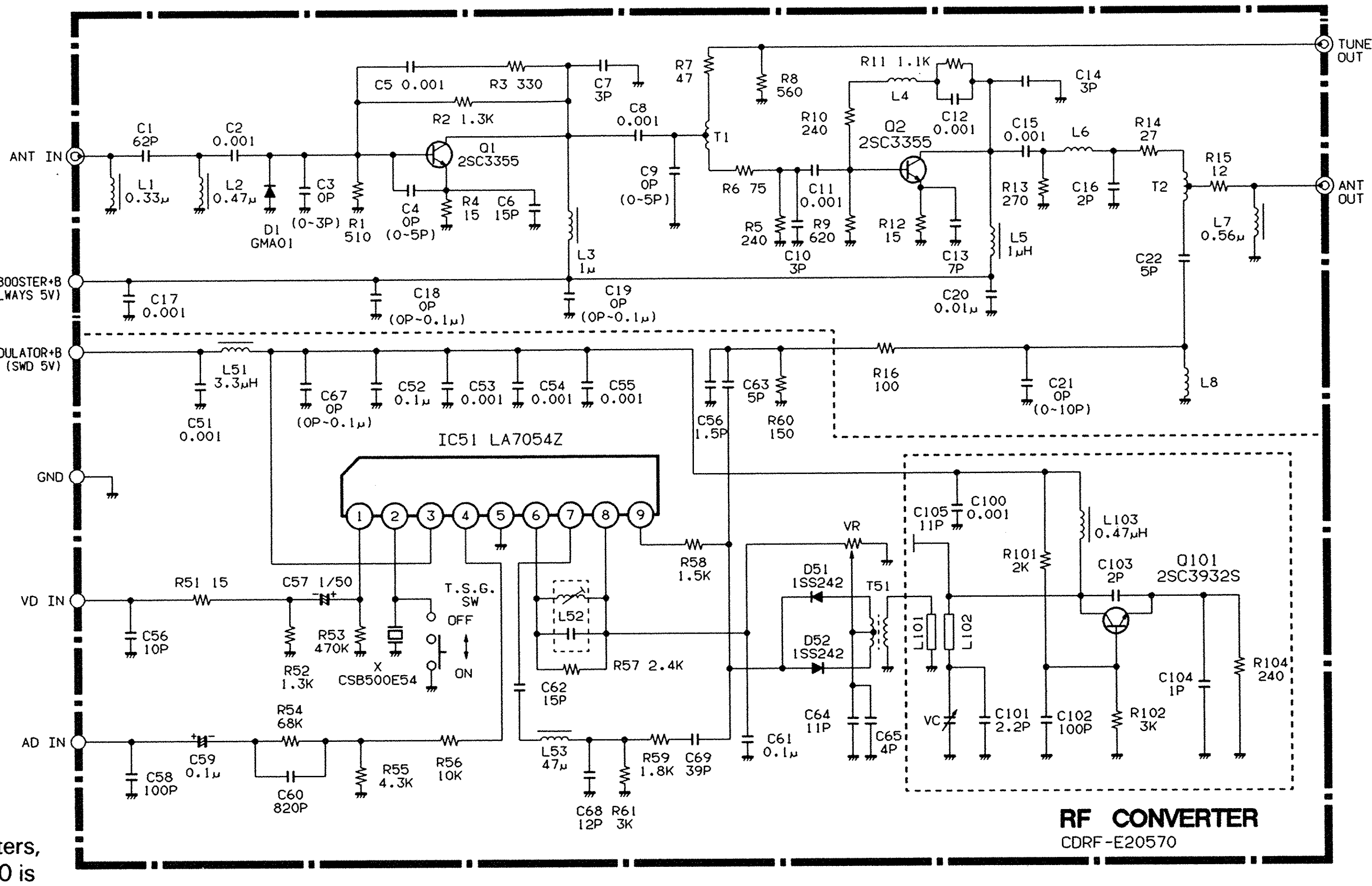
9-16. TN-7 BOARD SYNC DETECTOR CIRCUIT DIAGRAM


TN-7
U2-12546/RP2-G
CN691
SD
TP
ALWAYS 12V
SYNC L
GND
TO CP-2
Q6901 2SC2812 -L4,L5 BUFFER
D6901 DCB015
Q6902 2SA1338-4,5 SWITCH
Q6903 2SC2812-L4,L5 AMP
T6901
D6902 DA204K
B6901 2SC3395 SWITCH
VOLTAGE : TUNER REC MODE

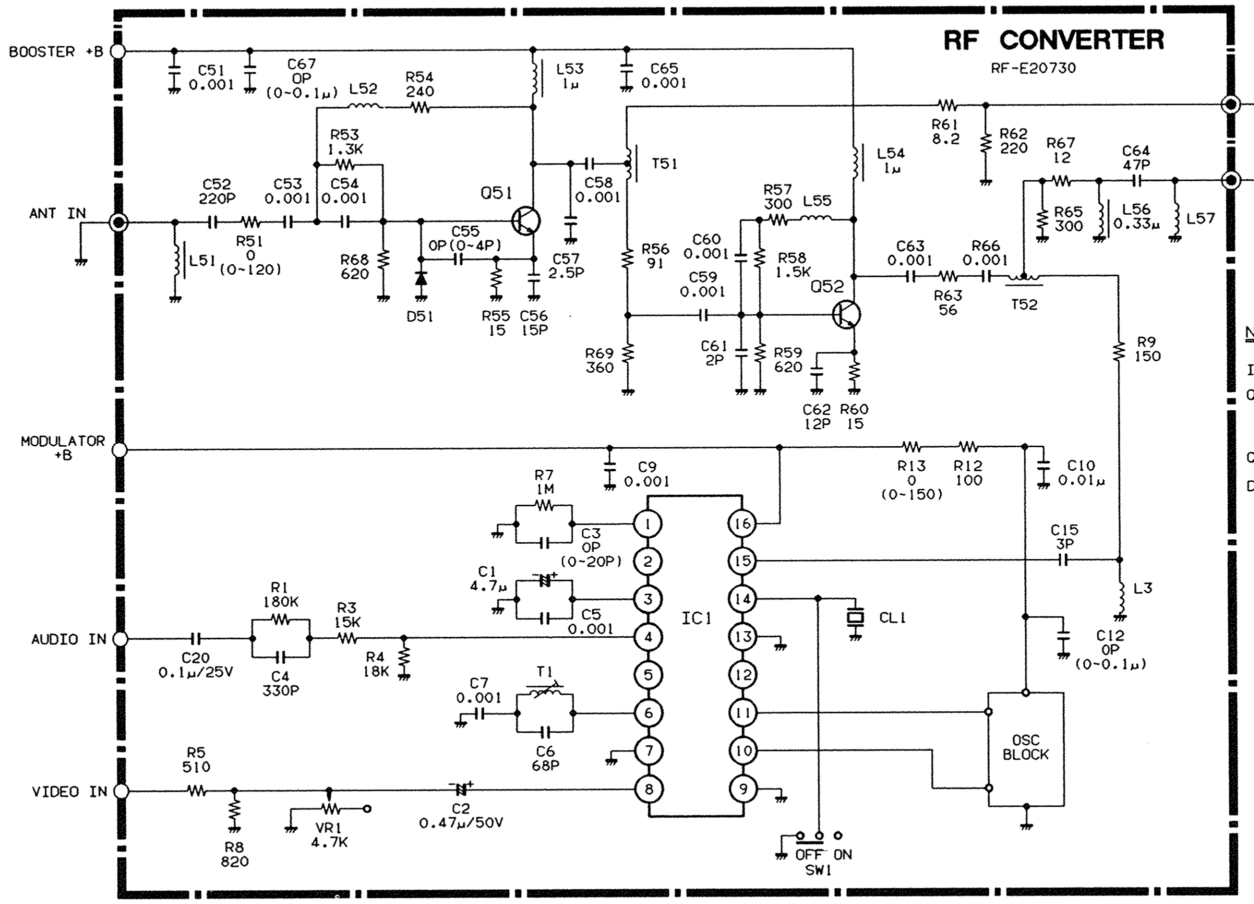
9-17. TN-7 P.C.B.


TN-7
T6901
IC691
CN691

9-18. RF CONVERTER CIRCUIT DIAGRAM


ANT IN
BOOSTER+B (ALWAYS 5V)
MODULATOR+B (SWD 5V)
GND
VD IN
AD IN
TUNER OUT
ANT OUT
Q1 2SC3355
Q2 2SC3355
IC51 LA7054Z
T.S.G. SW
OFF
ON
X CSB500E54
D51 1SS242
D52 1SS242
Q101 2SC3932S
RF CONVERTER
CDRF-E20570

Note: Either one of these RF converters, type CDRF-E20570 or CDRF-E20730 is used, depending on availability.


RF CONVERTER
RF-E20730
BOOSTER +B
ANT IN
MODULATOR +B
AUDIO IN
VIDEO IN
VTR TU
ANT OUT
Q51
Q52
T51
T52
IC1
CL1
OSC BLOCK
SW1
OFF ON

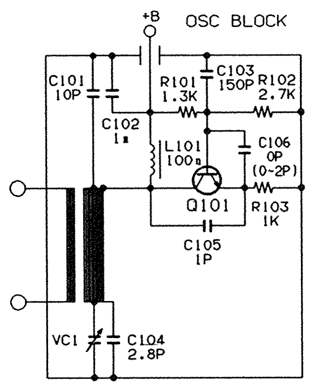
NOTE

IC1 : ALP102, ALP102A OR EQUIVALENT

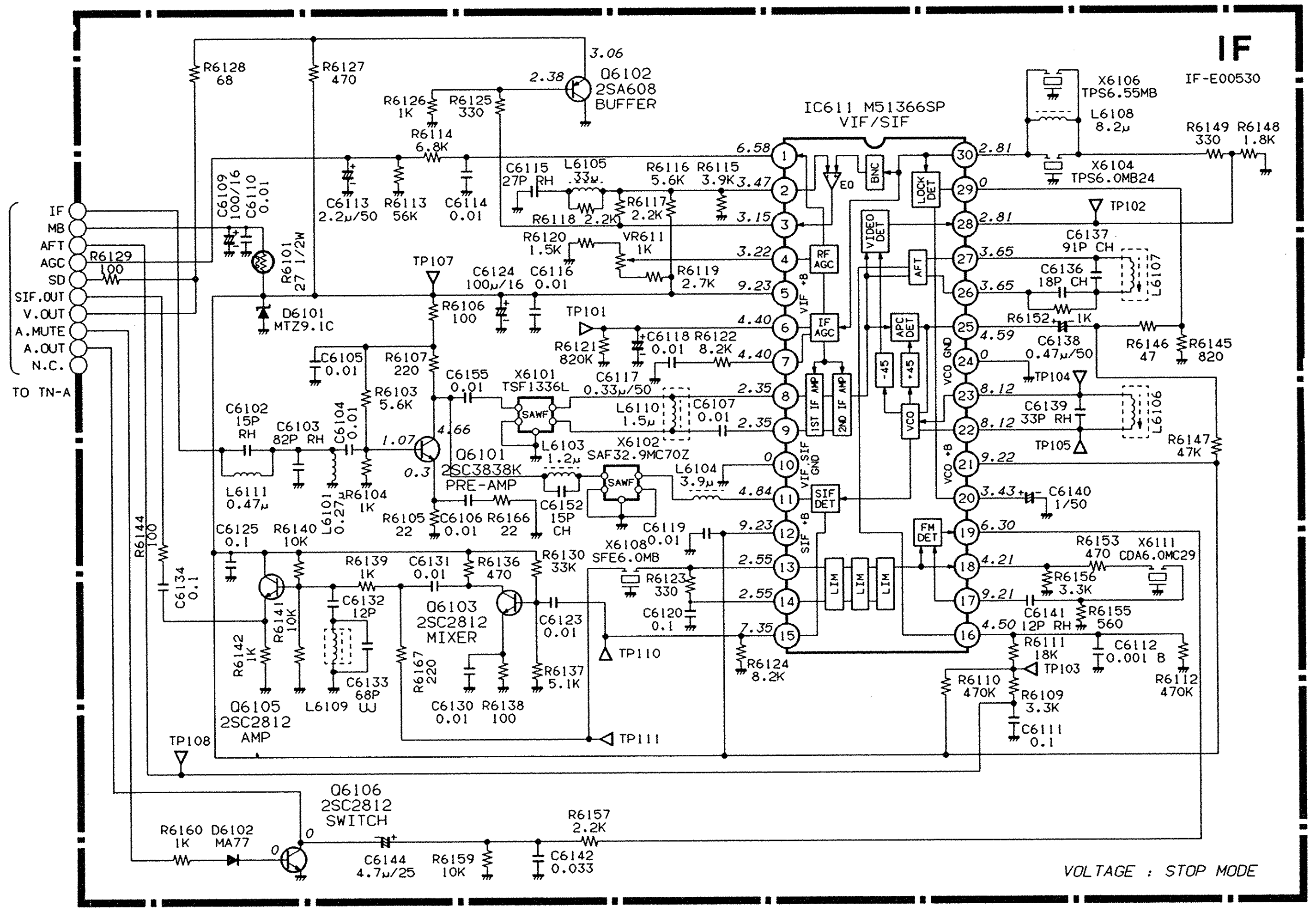
Q51.Q52: 2SC2570, 2SC3355, MPS571, MPS911, OR EQUIVALENT

Q101 : 2SC2480 OR EQUIVALENT

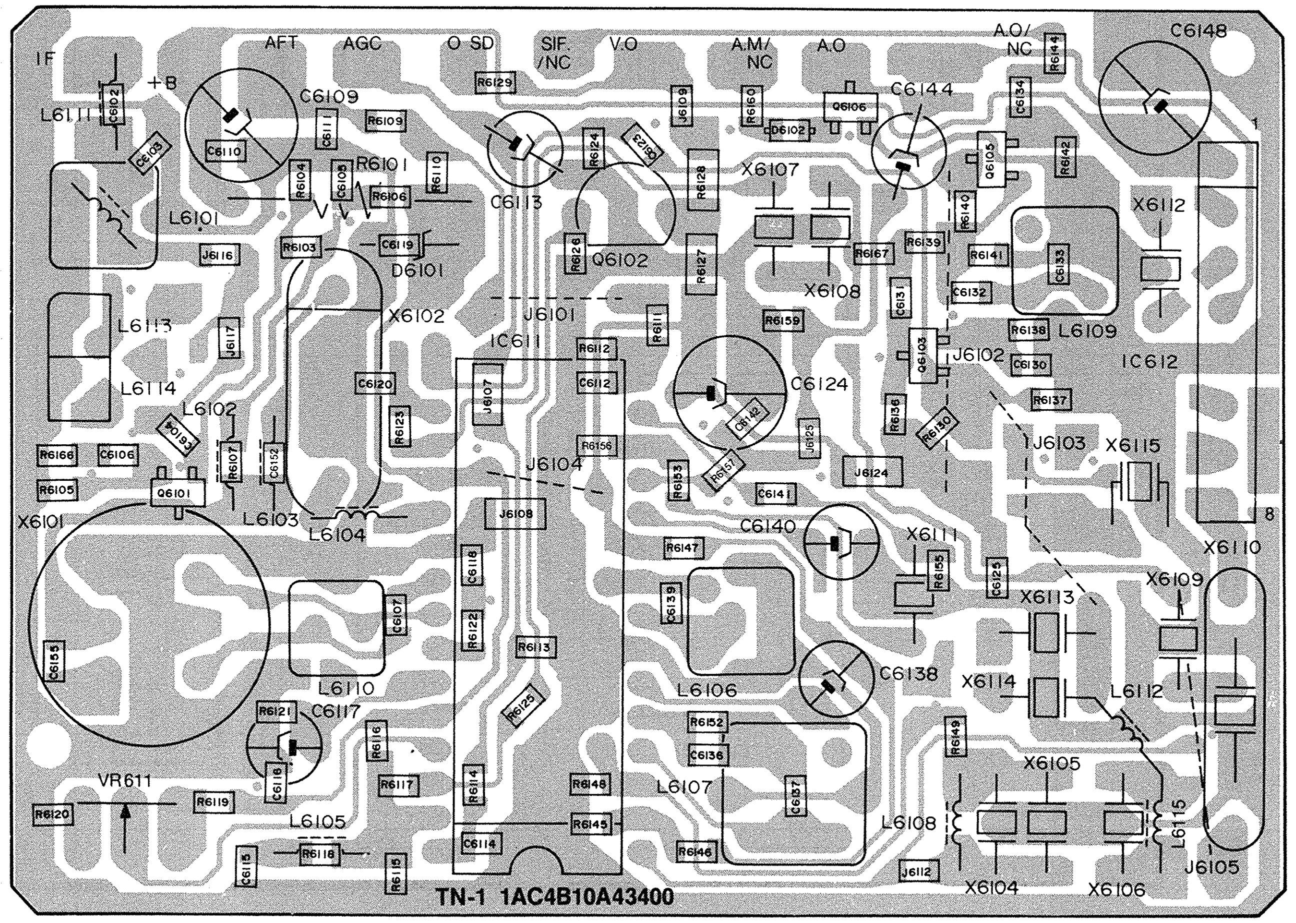
D51 : 1SS133, 1SS83 OR EQUIVALENT


+B
OSC BLOCK
C101 10P
C102 1
C103 150P
R101 1.3K
R102 2.7K
L101 100n
C106 0P (0-2P)
Q101
R103 1K
C105 1P
VC1
C104 2.8P

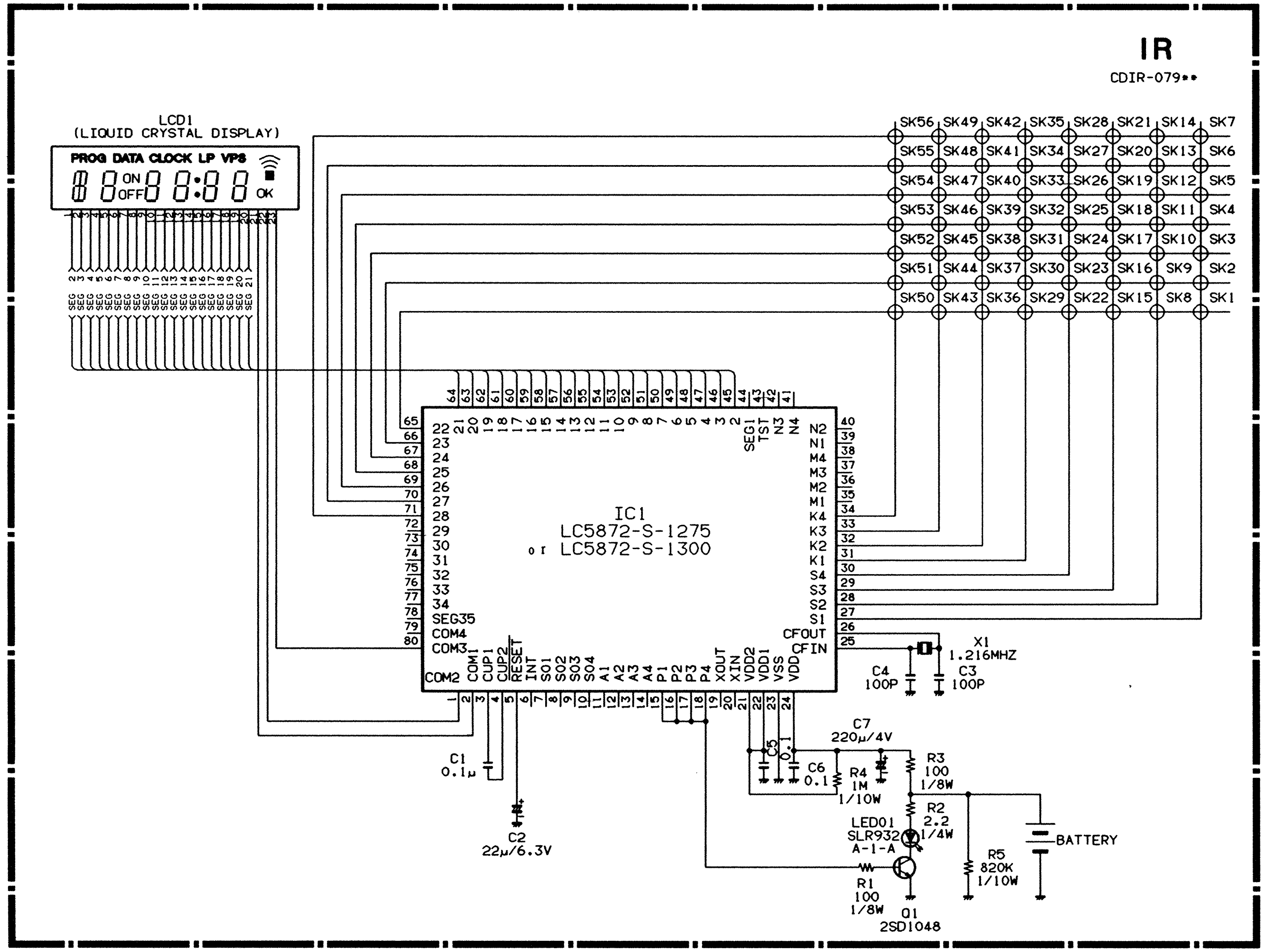
9-19. IF CIRCUIT DIAGRAM


IF
IF-E00530
IC611 M51366SP VIF/SIF
Q6102 2SA608 BUFFER
Q6101 2SC3838K PRE-AMP
Q6103 2SC2812 MIXER
Q6105 2SC2812 AMP
Q6106 2SC2812 SWITCH
D6101 MTZ9.1C
X6101 TSF1336L
X6102 SAF32.9MC70Z
X6108 SFE6.0MB
X6111 CDA6.0MC29
X6106 TPS6.55MB
X6104 TPS6.0MB24
IF
MB
AFT
AGC
SD
SIF.OUT
V.OUT
A.MUTE
A.OUT
N.C.
TO TN-A
TP101
TP102
TP103
TP104
TP105
TP107
TP108
TP110
TP111
VOLTAGE : STOP MODE

9-20. IF P.C.B.


IF
+B
AFT
AGC
O SD
SIF. /NC
V.O
AM/ NC
A.O
AO/ NC
C6109
C6113
C6144
C6148
C6124
C6140
C6138
C6117
L6101
L6111
L6113
L6114
L6102
L6103
L6104
L6105
L6106
L6107
L6108
L6109
L6110
L6112
L6115
D6101
Q6101
Q6102
X6101
X6102
X6104
X6105
X6106
X6107
X6108
X6109
X6110
X6111
X6112
X6113
X6114
X6115
IC611
IC612
J6101
J6102
J6103
J6104
J6105
VR611
TN-1 1AC4B10A43400

9-21. IR REMOTE CONTROL CIRCUIT DIAGRAM


IR
CDIR-079••
LCD1
(LIQUID CRYSTAL DISPLAY)
PROG DATA CLOCK LP VPS
ON
OFF
OK
SK56 SK49 SK42 SK35 SK28 SK21 SK14 SK7
SK55 SK48 SK41 SK34 SK27 SK20 SK13 SK6
SK54 SK47 SK40 SK33 SK26 SK19 SK12 SK5
SK53 SK46 SK39 SK32 SK25 SK18 SK11 SK4
SK52 SK45 SK38 SK31 SK24 SK17 SK10 SK3
SK51 SK44 SK37 SK30 SK23 SK16 SK9 SK2
SK50 SK43 SK36 SK29 SK22 SK15 SK8 SK1
IC1
LC5872-S-1275
or LC5872-S-1300
SEG35
COM4
COM3
COM2
COM1
CUP1
CUP2
RESET
INT
SO1
SO2
SO3
SO4
A1
A2
A3
A4
P1
P2
P3
P4
XOUT
XIN
VDD2
VDD1
VSS
VDD
SEG1
TST
N3
N4
N2
N1
M4
M3
M2
M1
K4
K3
K2
K1
S4
S3
S2
S1
CFOUT
CFIN
X1
1.216MHZ
C4
100P
C3
100P
C1
0.1μ
C2
22μ/6.3V
C7
220μ/4V
C5
0.1
C6
0.1
R4
1M
1/10W
R3
100
1/8W
R2
2.2
1/4W
LED01
SLR932
A-1-A
R1
100
1/8W
Q1
2SD1048
R5
820K
1/10W
BATTERY

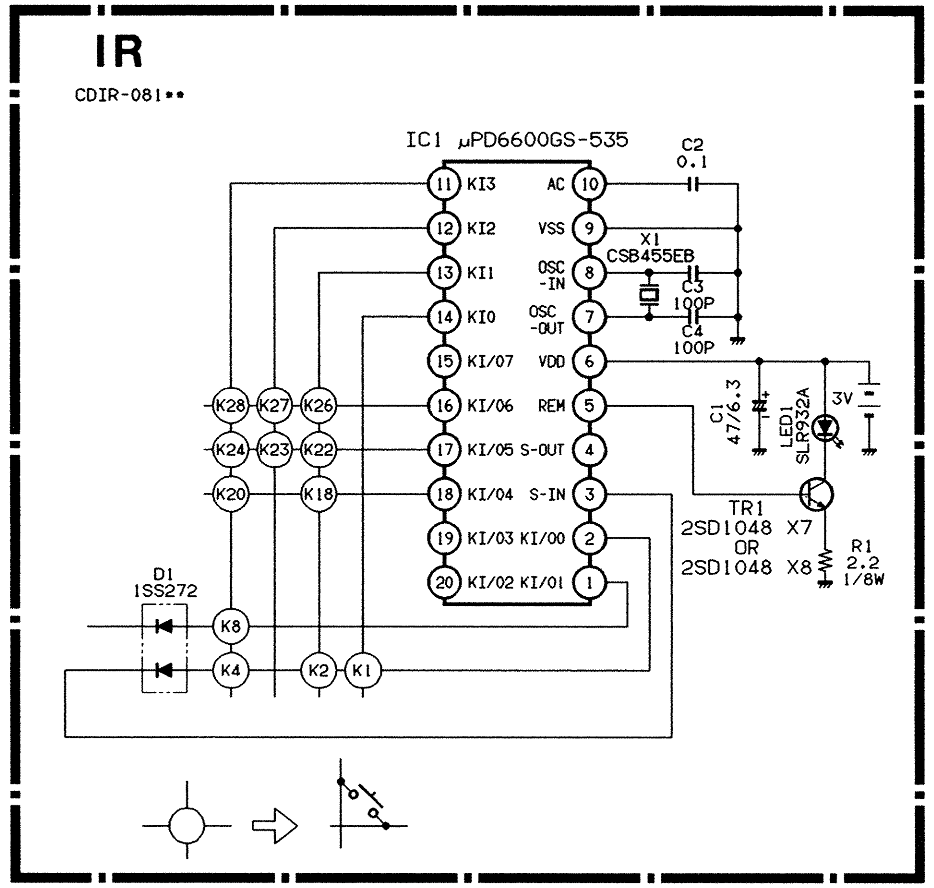
AVAILABLE KEY FUNCTION OF REMOTE CONTROL UNIT

KEY NO.	FUNCTION	
1	POWER	USE
2	SUBTITLE	
3	VPS	
4	SP/LP	USE
5	📶 TRANS	USE
6	● REC	USE
7	A.DUB	
8	CLOCK	USE
9	1	USE
10	2	USE
11	3	USE
12	VCR/TV	
13	● REC	USE
14	INSERT	
15	PROG	USE
16	4	USE
17	5	USE
18	6	USE
19	▲ CH+	USE
20	■ STOP	USE
21	MODE-	USE
22	CHECK	USE
23	7	USE
24	8	USE
25	9	USE
26	▼ CH-	USE
27	■ STOP	USE
28	MODE+	USE

KEY NO.	FUNCTION		
29		MENU	USE
30	CL		USE
31	0/AV		USE
32	OK		USE
33	MONITOR	TV	USE
34	❚❚ PAUSE/STILL		USE
35	SLOW		USE
36		VPT	USE
37	RED		USE
38	GREEN		USE
39	YELLOW		USE
40	BLUE		USE
41	ERASE		USE
42	AUDIO		USE
43		TEXT	USE
44	SPECIAL	☰? REVEAL	USE
45	INDEX	☰⇕ EXP	USE
46	RESET	☰● TIME	USE
47	MEMORY	☰☐ HALT	USE
48	MARK		USE
49	REMAIN		USE
50	ATR		USE
51	◀◀ REW/⏪		USE
52	PLAY ▶		USE
53			
54	⏩/FF ▶▶		USE
55	SC		USE

IR-07942

9-22. IR REMOTE CONTROL CIRCUIT DIAGRAM

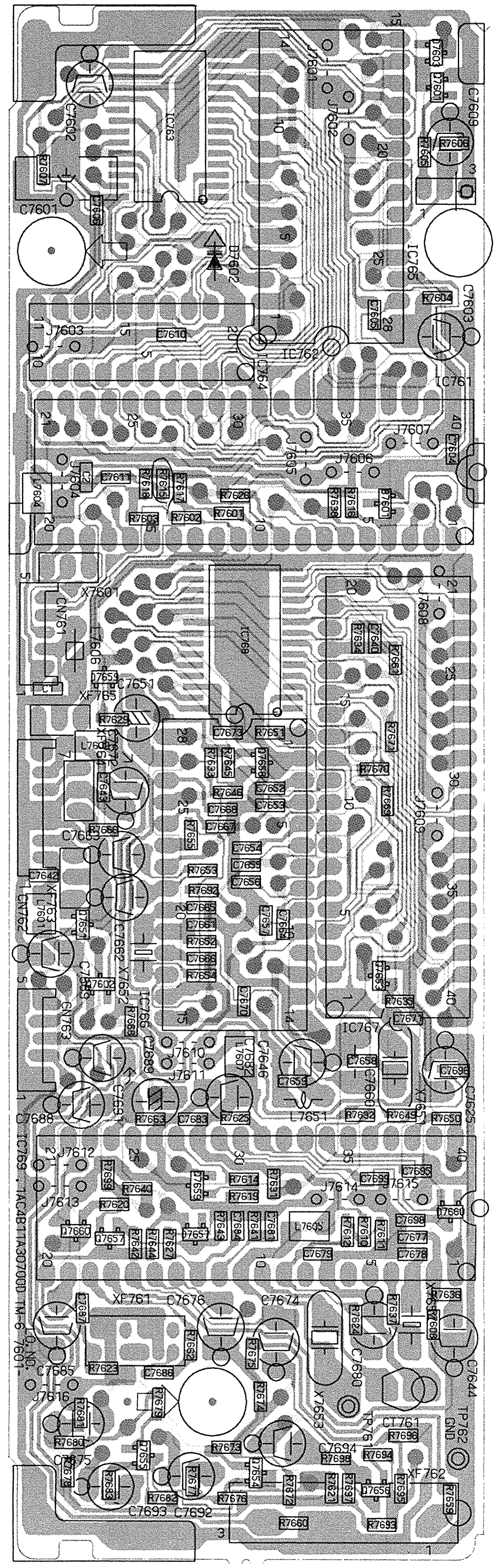

IR
CDIR-081••
IC1 μPD6600GS-535
KI3
KI2
KI1
KI0
KI/07
KI/06
KI/05
KI/04
KI/03
KI/02
AC
VSS
OSC -IN
OSC -OUT
VDD
REM
S-OUT
S-IN
KI/00
KI/01
C2
0.1
X1
CSB455EB
C3
100P
C4
100P
C1
47/6.3
LED1
SLR932A
3V
TR1
2SD1048 X7
OR
2SD1048 X8
R1
2.2
1/8W
D1
1SS272
K28
K27
K26
K24
K23
K22
K20
K18
K8
K4
K2
K1

AVAILABLE KEY FUNCTION
OF REMOTE CONTROL UNIT

KEY NO	FUNCTION	
K1	POWER	USE
K2	VTR/TV	
K4	SP/LP	USE
K8		
K18	CHANNEL ▼	USE
K20	CHANNEL ▲	USE
K22	◀◀ REW	USE
K23	PLAY ▶	USE
K24	FF ▶▶	USE
K26	● REC	USE
K27	■ STOP	USE
K28	❚❚ PAUSE/STILL	USE

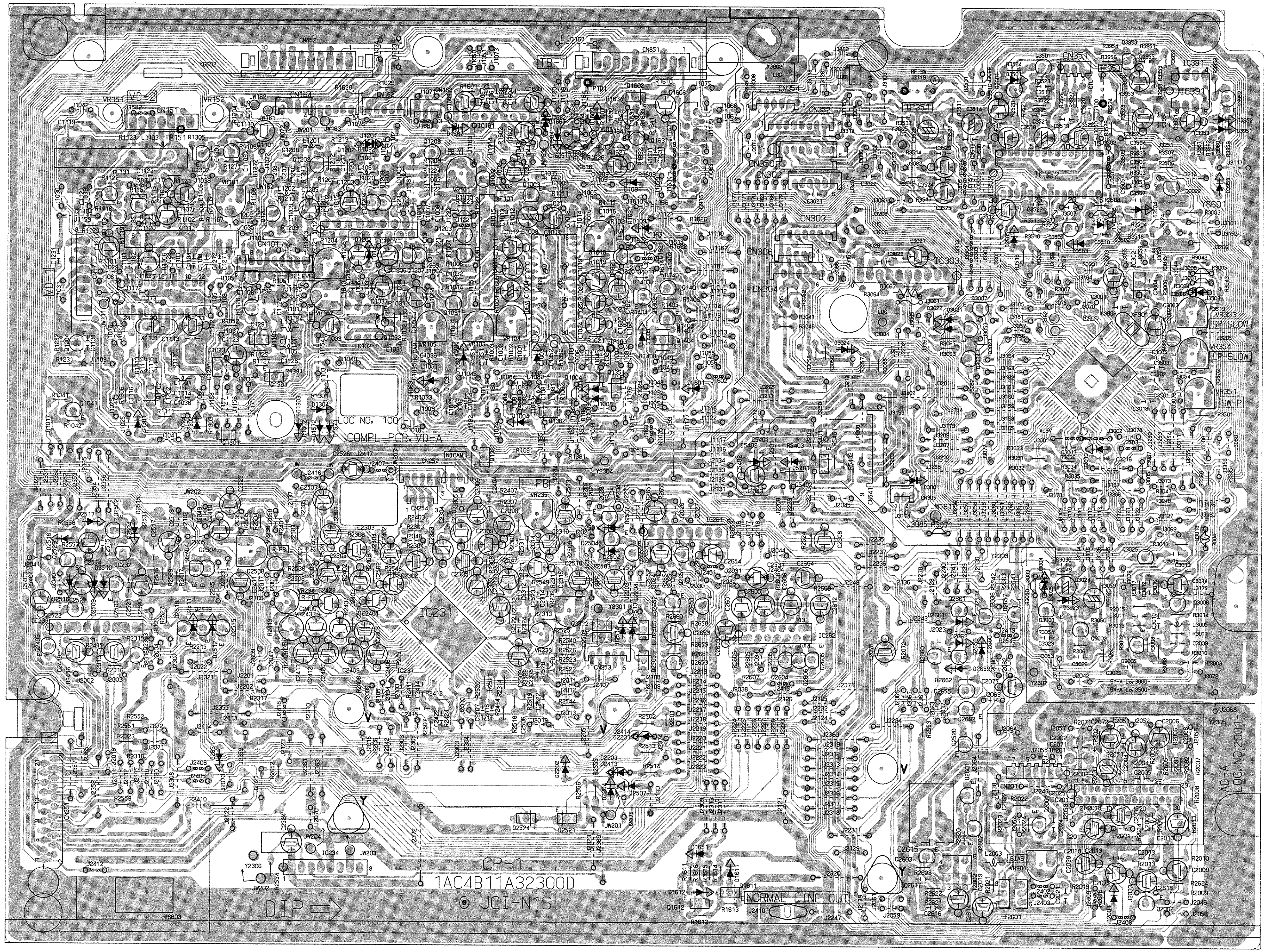
IR-08102

9-23. TM-6 P.C.B.

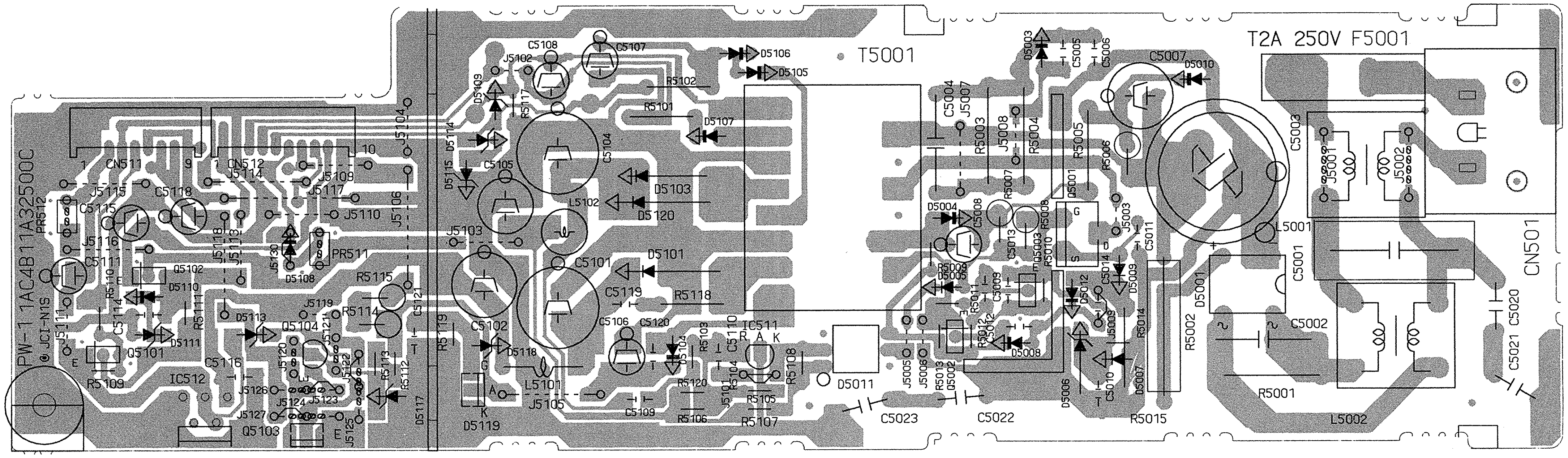


NOTE: ▨ **BOTTOM SIDE FOIL**
TOP SIDE FOIL

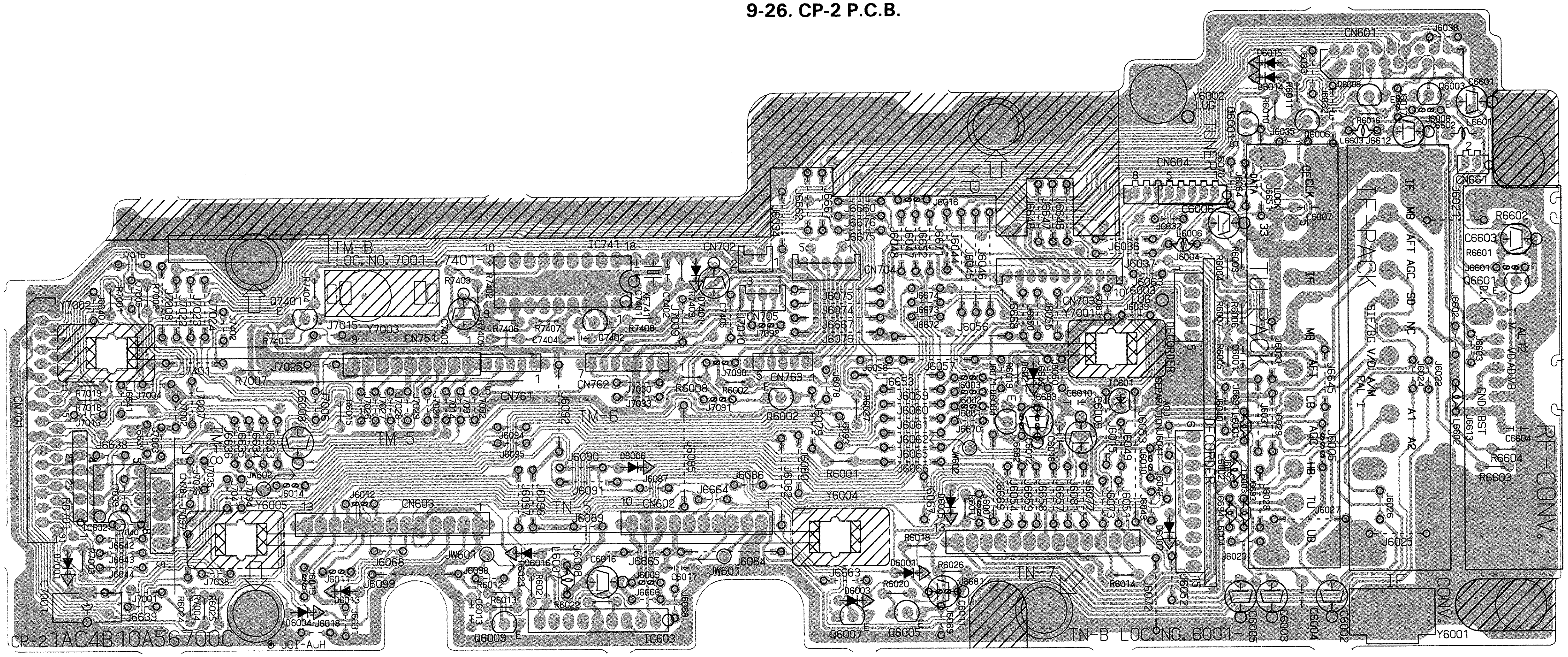
9-24. CP-1 P.C.B.


LOC NO. 1001
COMPL PCB; VD-A
IC231
CP-1
1AC4B11A32300D
JCI-N1S
DIP
NORMAL LINE OUT
AD-A LOC.NO 2001
VD-1
VD-2
IC301
IC352

9-25. PW-1 P.C.B.

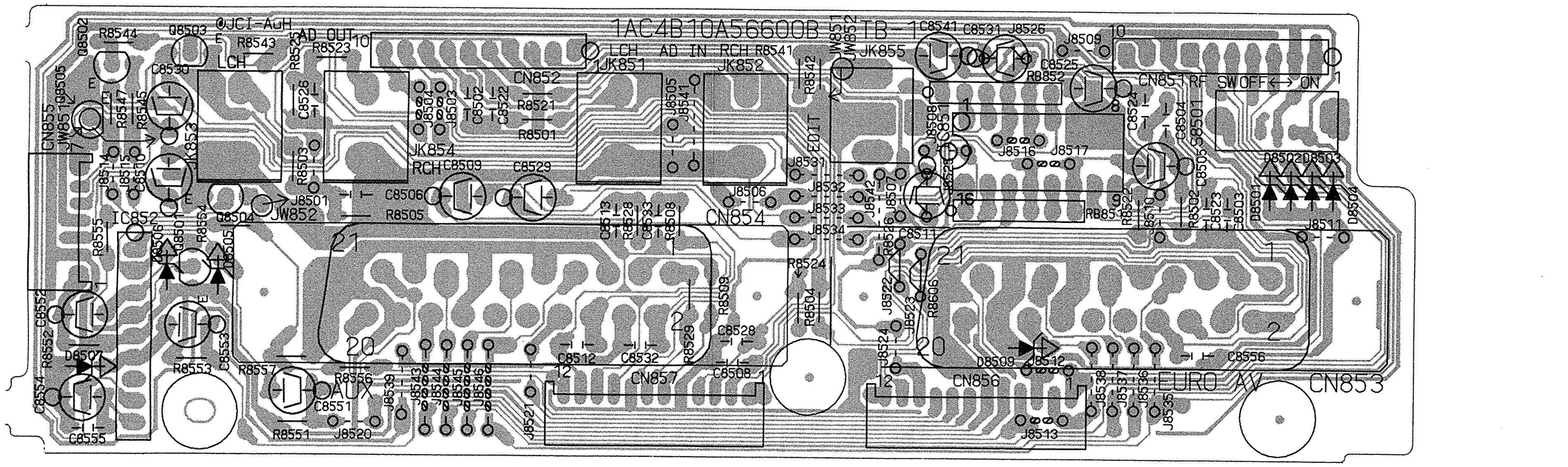

T5001
T2A 250V F5001
CN501
CN511
CN512
PW-1 1AC4B11A32500C
JCI-N1S
IC511
IC512
L5001
L5002
L5101
L5102
C5001
C5002
C5007
C5020
C5021
C5022
C5023
D5001
D5011
D5101
D5103
D5119
D5120
R5001
R5002
R5015
R5107
R5118
Q5101
Q5103
PR511
PR512

9-26. CP-2 P.C.B.

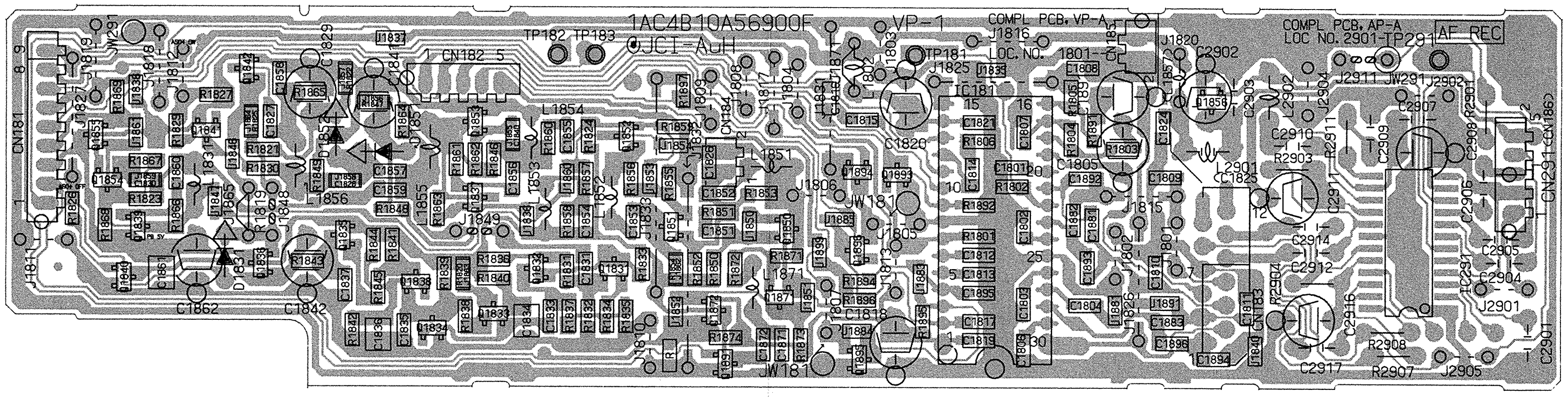

CN601
CN602
CN603
CN604
CN701
CN702
CN703
CN704
CN705
CN751
CN761
CN762
CN763
IC603
IC741
TM-B
LOC. NO. 7001-7401
TN-B LOC. NO. 6001-
TM-5
TM-6
TN-7
TUNER
IF-PACK
DECODER
RF-CONV.
IF
CONV.
Y6001
Y6002
Y6004
Y6005
Y7001
Y7002
Y7003
CP-2 1AC4B10A56700C
JCI-AuH

K
J
I
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15

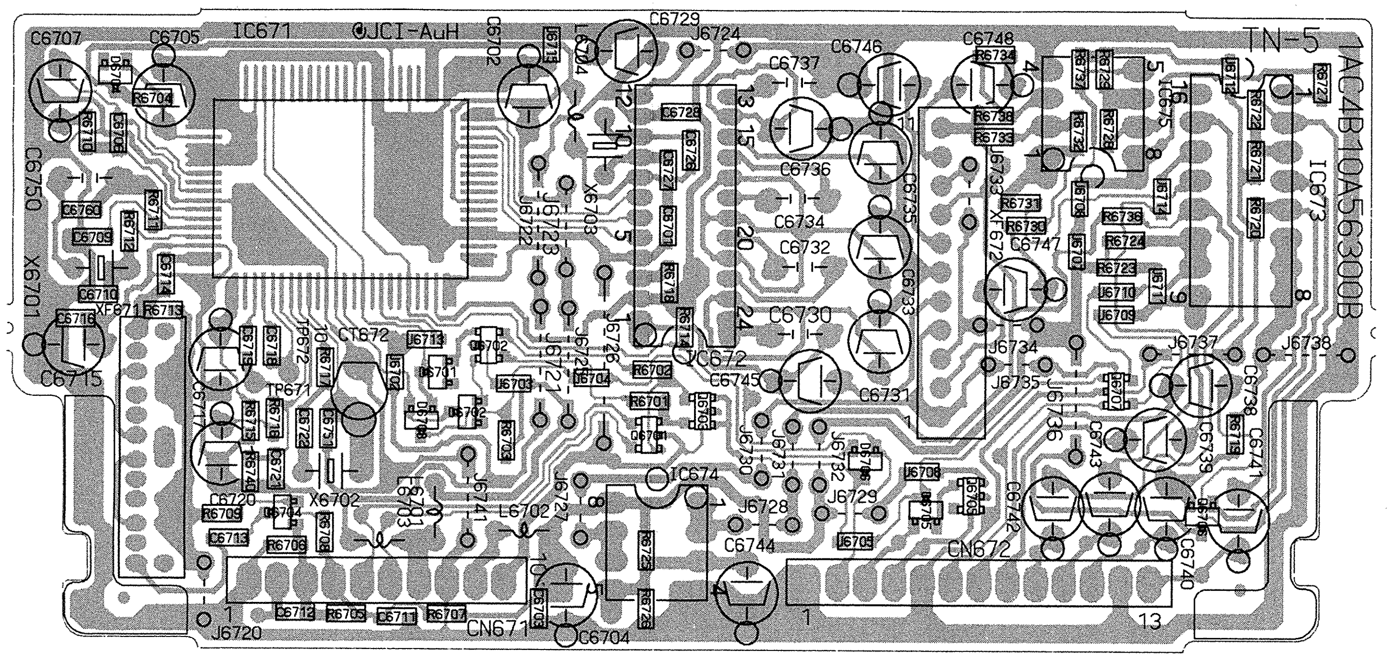
9-27. TB-1 P.C.B.


1AC4B10A56600B TB-1
JCI-AuH
AD OUT
LCH
AD IN
RCH
JK851
JK852
JK853
JK854
JK855
CN852
CN854
CN855
CN856
CN857
CN851 RF
SW OFF ←→ ON
AUX
EURO AV
CN853
IC852

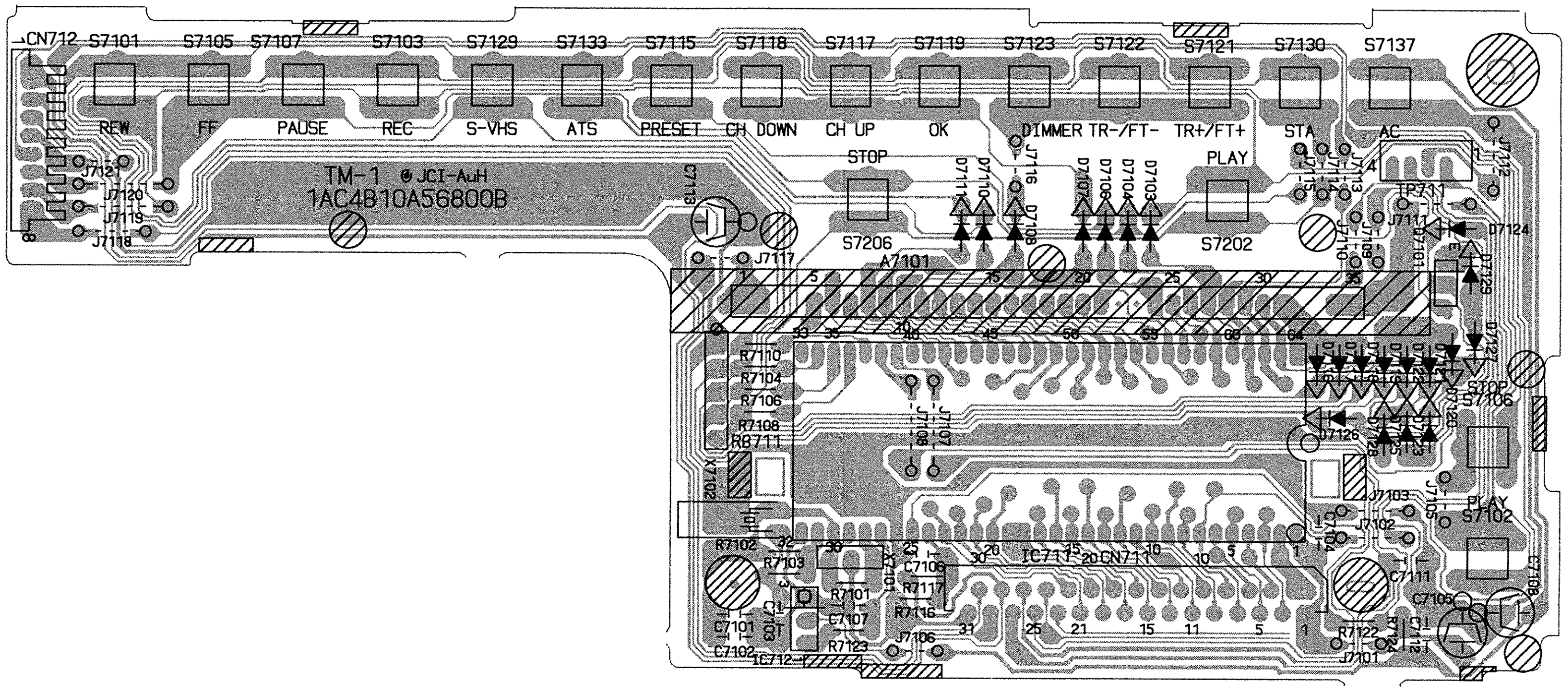
9-28. VP-1 P.C.B.


1AC4B10A56900F VP-1
JCI-AuH
TP182
TP183
TP181
CN182
CN181
IC181
COMPL PCB, VP-A
LOC NO. 1801-
COMPL PCB, AP-A
LOC NO. 2901-
TP291
AF REC
CN291
CN1862

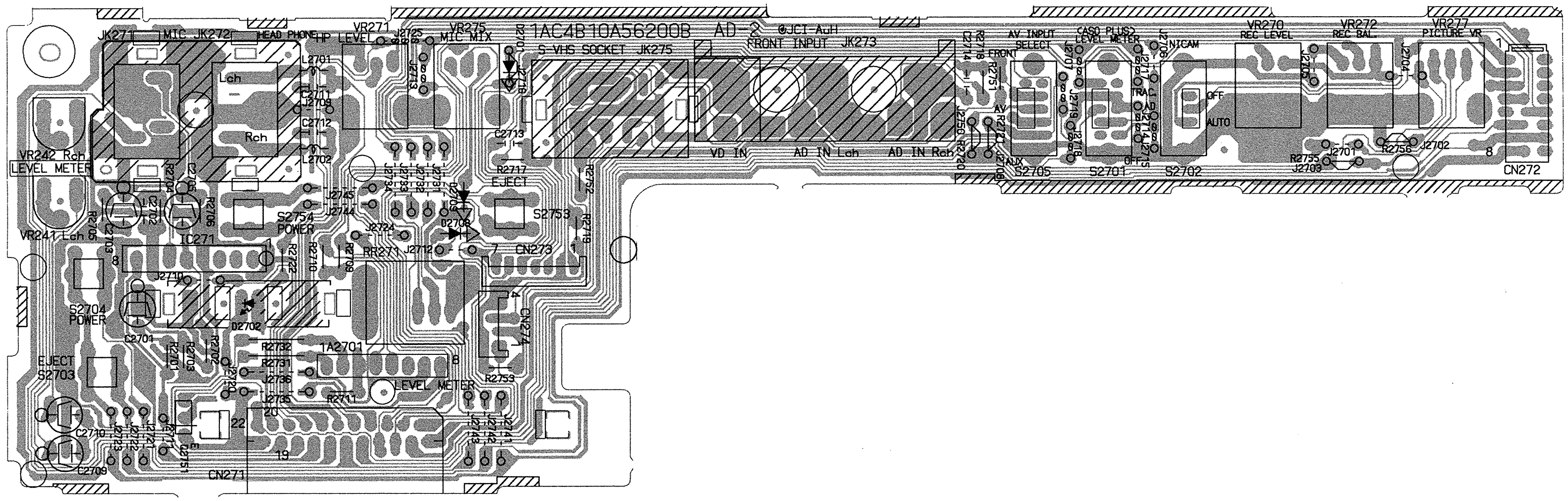
9-29. TN-5 P.C.B.


TN-5
1AC4B10A56300B
JCI-AuH
IC671
IC672
IC673
IC674
IC675
CN671
CN672
X6701
X6702
XF671
XF672
TP671
TP672

9-30. TM-1 P.C.B.


CN712
S7101
REW
S7105
FF
S7107
PAUSE
S7103
REC
S7129
S-VHS
S7133
ATS
S7115
PRESET
S7118
CH DOWN
S7117
CH UP
S7119
OK
S7123
DIMMER
S7122
TR-/FT-
S7121
TR+/FT+
S7130
STA
S7137
AC
STOP
S7206
PLAY
S7202
TM-1 ⊕JCI-AuH
1AC4B10A56800B
C7113
J7117
A7101
TP711
D7124
R7110
R7104
R7106
R7108
RB711
STOP
S7106
PLAY
S7102
IC711
CN711
R7102
R7103
R7101
C7107
R7123
C7101
C7102
IC712
J7106
R7116
R7117
C7106
C7111
C7105
R7122
J7101
J7103
J7102
D7126

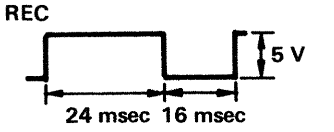
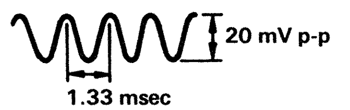
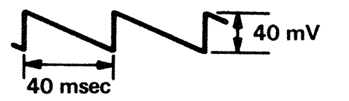
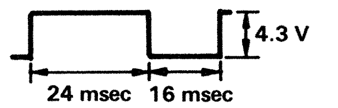
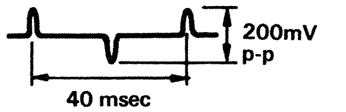
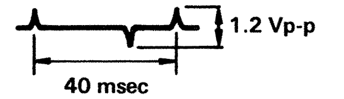
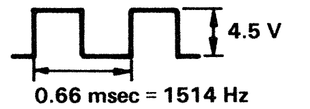
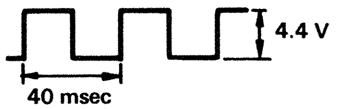
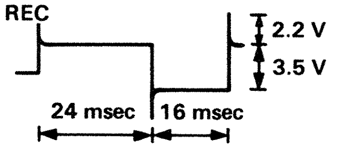
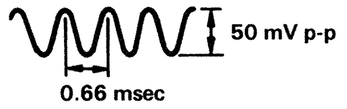
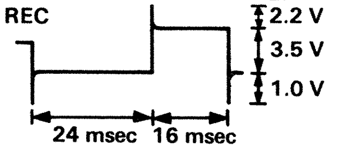
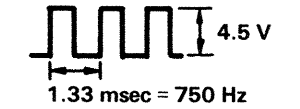
9-31. AD-2 P.C.B.


JK271
MIC JK272
HEAD PHONE
HP LEVEL
VR271
VR275
MIC MIX
1AC4B10A56200B AD-2 ⊕JCI-AuH
S-VHS SOCKET JK275
FRONT INPUT JK273
VD IN
AD IN Lch
AD IN Rch
AV INPUT SELECT
CASO PLUS LEVEL METER
NICAM
OFF
AUTO
VR270
REC LEVEL
VR272
REC BAL.
VR277
PICTURE VR
CN272
S2705
S2701
S2702
Lch
Rch
L2701
L2702
C2712
C2713
VR242 Rch
LEVEL METER
VR241 Lch
IC271
S2754
POWER
EJECT
S2753
R2717
CN273
RR271
S2704
POWER
EJECT
S2703
C2701
D2702
TA2701
R2732
R2731
R2736
R2735
R2711
R2753
LEVEL METER
CN274
CN271
C2710
C2709
D2751
R2755
J2703
J2701
R2756
J2702

K J I H G F E D C B A

1 2 3 4 5 6 7 8 9 10 11 12 13 14

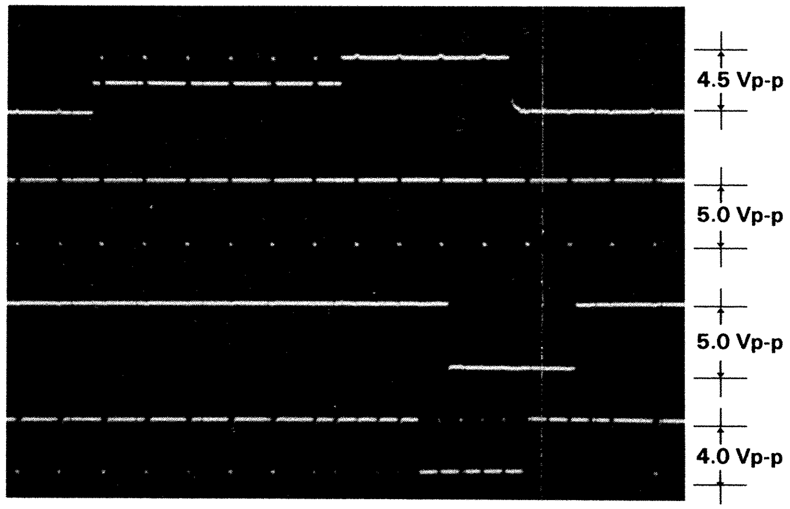
9-32. WAVEFORM OF SERVO

IC352 **(LA7124 or LA7123)**		⑫	REC  5 V 24 msec 16 msec	㉘	REC/PB  20 mV p-p 1.33 msec
③	P.B.  40 mV 40 msec	⑮	PB  4.3 V 24 msec 16 msec	㉙	PB  200mV p-p 40 msec
④	P.B.  1.2 Vp-p 40 msec	㉓ ㉖	REC/PB  4.5 V 0.66 msec = 1514 Hz	㉚	REC/PB 
⑦	REC  2.2 V 3.5 V 24 msec 16 msec	㉔ ㉕	REC/PB  50 mV p-p 0.66 msec		
⑧	REC  2.2 V 3.5 V 1.0 V 24 msec 16 msec	㉗	REC/PB  4.5 V 1.33 msec = 750 Hz		

V-LOCK PULSE GENERATION CIRCUIT WAVEFORM (IC391, Q3952, Q3953, D3951, D3952)

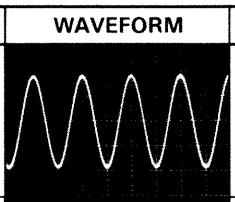
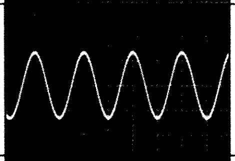
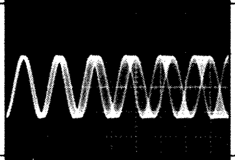
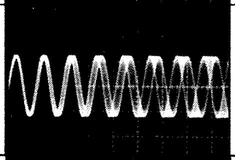
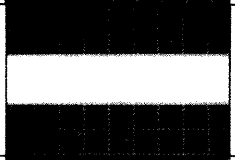
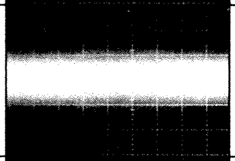
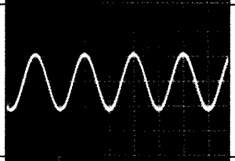
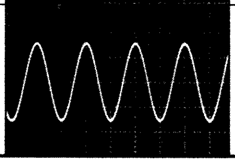
[STILL Mode]

1. V-LOCK PULSE OUTPUT
   · Cathode of D3951 and D3952
2. H-SYNC OUTPUT
   · Pin 2 of IC391
3. V-SYNC OUTPUT
   · Pin 4 of IC391
4. COMPOSITE SYNC INPUT
   · Pin 6 of IC391



WF-S-VP

9-33. WAVEFORM OF AUDIO

TEST LOCATION	WAVEFORM	MODE/LEVEL
IC201 Pin 68 (L ch) and Pin 78 (R ch)		REC 0.7 Vp-p AV Input
IC201 Pin 42 (L ch) Pin 23 (R ch)		REC 0.5 Vp-p Modulation Level
IC201 Pin 38 L ch		REC 1.2 Vp-p 1.4MHz Carrier
IC201 Pin 28 R ch		REC 1.2 Vp-p 1.8 MHz Carrier
CN202 Pin 4		REC 100m Vp-p 1.4M/1.8M AF REC
CN202 Pin 3		PB 1.5 Vp-p AF PB
IC201 Pin 56 (L ch) Pin 9 (R ch)		REC/PB 1.1 Vp-p AD Level
IC201 Pin 47 (L ch) Pin 20 (R ch)		REC/PB 1.5 Vp-p Audio Output

NOTE:
Audio input Condition is 1KHz sine-wave signal from AV terminal.

WF-A2

9-34. IC301 SYSTEM CONTROL & DIGITAL SERVO MPU PIN FUNCTIONS TABLE

No.	Name	I/O	I/O Signal Function
1	D-PG	I	Drum PG pulse input.
2	S-DATA IN	I	Terminal for communication of mode data with other microprocessors.
3	S-DATA OUT	O	Data is 8bitX12 block serial data.
4	SSB CLCK	O	The clock pulse is output from this microprocessor.
5	INSERT ON/OFF	I	Insert function ON/OFF terminal.
6	ENV SW	I	Video head selection signal (PB envelop detection signal) input for 4-head special playback.
7	DOC	I	Drop out detection pulse input. Used for absorbing STILL noise.
8	C-FG 2.	I	Capstan motor FG-2 signal input. Used for brake timing control at slow mode.
9	C-FG 1.	I	Capstan motor FG-1 signal input. (Capstan speed control)
10	D-FG	I	Head drum motor FG signal input. (Drum speed control)
11	PB CTL P.	I	CTL head playback pulse input.
12	COMP SYNC	I	Composite sync signal input.
13	RF SW P.	O	Output of RF switching pulse created by head drum PG.
14	AF SW P.	O	Output of Hi-Fi (FM) audio head switching pulse created by head drum PG.
15	VD P	O	Dummy VD (V LOCK) pulse output at special playback mode.
16	REC CTL	O	Recording control (CTL) signal output.
17	DRUM PWM	O	Head drum motor rotation (speed/phase) control signal output. (Signal as Pulse Width Moduration)
18	CAP PWM	O	Capstan motor rotation (speed/phase) control signal output. (Signal as Pulse Width Moduration)
19	A-VSS	-	Ground terminal for internal A/D converter.
20	AV REF	I	Reference voltage input for internal A/D converter.
21	AF ENV	I	Hi-Fi (FM) audio head envelope detection signal input for ATR function.
22	VD ENV	I	Video head envelope detection signal input for ATR function.
23	D-PG MM	I	CR for drum PG pulse delay. (Head switching position adjustment.)
24	SLOW TRK CR	I	CR for slow tracking adjustment.
25	DEW S.	I	Dew sensor input terminal.
26	OPTION	I	Terminal to alter internal specifications. (Set up input voltage: 0V for 2Head / 1.2V for 3Head / 5V for 4Head models)
27	T.TOP S.	I	Sensor signal input for tape beginning detection.
28	T.END S.	I	Sensor signal input for tape end detection.
29	RESET	I	Initial reset terminal for this IC.
30	VDD	-	IC power supply input. (5Vdc)
31	X2	-	IC clock OSC terminal. Frequency is 12MHz.
32	X1	-	
33	VSS	-	Ground terminal
34	H AMP SW	O	Video head amplifier (SP/LP head or SUB head) selection signal output. (4/3 HEAD models)
35	ROTARY	O	Chroma phase control signal output for 4/3 head models.
36	VD REC	O	Recording indication signal. Used for equiped rotary erase head models.
37	SLOW+STILL	O	Output signal indicating SLOW/STILL modes.
38	CTL GAIN DOWN	O	CTL head AMP gain control signal output.
39	-	-	
40	CAP F/R	O	Capstan motor forward/revers control.
41	DRUM P	O	Outputs the drum jitter compensation in the slow mode.
42	CAP STR/STP	O	Outputs the capstan motor start and brake pulses in the slow mode.
43	REMARK	O	Output the control (CTL) signal re-recording control signal. Three-value output (H, M, L).
44	FE CTL	O	Output the rotary erase head ON/OFF control.
45	ANT/VIDEO	O	Antenna through or video deck RF output select (Video when LOW).
46	AF REC	O	Hi-Fi (FM) audio head recording timing control signal.
47	LP H	O	"HIGH" output when tape speed is set to LP mode.
48	POWER UP	O	"HIGH" output except when power is off. Indicating that power is ON.
49	SPECIAL PB	O	Output in special playback modes (R/F-SEARCH, STILL and SLOW).
50	PB H	O	Signal indicating playback mode.
51	REC	O	Signal indicating recording mode.
52	INPUT SEL. V	O	Signal for selecting video input signal.
53	INPUT SEL. A	O	Signal for selecting audio input signal.
54	NORMAL/HIFI	O	Signal for selecting normal audio and Hi-Fi audio signal.
55	ST/L/R	O	Signal for selecting audio output signal (STEREO / Lch / Rch / NORMAL).
56	A.DUB	O	Signal indicating audio dubbing mode.
57	A MUTE	O	Signal disable Hi-Fi audio signal output.
58	A REC MUTE	O	Signal disable normal audio signal output.
59	A NOR REC	O	Signal indicating normal audio recording.
60	A NOR PB	O	Signal indicating normal audio playback.
61	ML-M	O	Loading motor rotation speed (medium speed) indication signal.
62	ML-L	O	Loading motor rotation speed (low speed) indication signal.
63	ML-R	O	Loading motor rotation direction (REV) indication signal.
64	ML-F	O	Loading motor rotation direction (FWD) indication signal.
65	FF+REW	O	Signal indicating FF or REW modes.
66	STLL+SLW2	O	Drop out pulse width selection signal output to DOC circuit.
67	VSS	-	IC ground terminal.
68	-	I	Normaly pull-up 5Vdc.
69	SP/LP	O	"LOW" output when tape speed is set to SP mode. "HIGH" is set to LP mode.
70	EDIT IN	I	Edit mode control terminal.
71	SW DATA 0	I	3-bit data indicating operation position of mechanism.
72	SW DATA 1	I	
73	SW DATA 2	I	
74	FL-START SW	I	Switch input indicating start of cassette loading or discharge by cassette mechanism.
75	SAFETY SW	I	Input terminal for accidental erasur prevention switch. No operation to recording mode while "LOW" is input.
76	-	-	
77	VDD	-	IC power supply terminal. (5Vdc)
78	T.REEL P.	I	Pulse input for detection of take-up reel table rotation.
79	S.REEL P.	I	Pulse input for detection of supply reel table rotation.
80	AV CTL	O	AV terminal (pin8 of 21pin AV socket) control signal output.

VP4H91SA

9-35. IC711 (M50959) TIMER MPU PIN FUNCTIONS TABLE

No.	Name	I/O	I/O Signal Function
1	VDD	-	IC power supply input. (5 Vdc)
2	TEXT TXD	O	Data output (TXD) terminal fof VIDEOTEXT decoder unit .
3	TEXT RXD	I	Data input (RXD) terminal for VIDEOTEXT decoder unit .
4	PLL CLOCK	O	PLL tuning DATA , CLOCK and CE (enable) signal output to tuner / IF unit.
5	PLL DATA	O	
6	PLL CE	O	
7	BILINGUAL	I	Audio transmission system indication signal (BILINGUAL) input from decoder circuit.
8	COMMON CLK	O	Terminal for communication of respective data with E2PROM IC, OSD IC or tuning PLL IC.
9	COMMON DATA	I/O	The clock pulse is output from this microprocessor.
10	E2PROM CS	O	E2PROM access (enable) signal output.
11	PAL / SECAM	O	-
12	CH +	O	CH+ terminal control signal output.
13	STEREO	I	Audio transmission system indication signal (STEREO) input from decoder circuit.
14	AUDIO MUTE	O	"H" output (Audio Signal Mute) during tuning period.
15	VIDEO MUTE	O	"H" output (Video Signal Mute) during tuning period.
16	TEXT CLK	O	Clock signal output to VIDEOTEXT decoder unit .
17	SSB CLK	I	Terminal for communication of mode data with other MPU.
18	SSB SDA OUT	O	The clock pulse is input from system control MPU.
19	SSB SDA IN	I	Data is 8bit X 12 block serial data.
20	AFT C	I	AFT S-curve input terminal.
21	SD (H SYNC)	I	Horizontal sync detection signal input for exsistence channel discrimination.
22	VPS SCL	O	Clock shignal for VPS decoder IC.
23	VPS SDA	I/O	Data exchange with the VPS decoder IC.
24	POWER FAIL	I	Power failuer mode set at "L" input.
25	IR SIG.	I	Remote control signal input.
26	VSS	-	IC Ground terminal.
27	RESET	I	Initial reset terminal for this IC. Reset when "LOW".
28	X IN	-	IC clock OSC terminal.
29	X OUT	-	Frequency is 6 MHz.
30	XC IN	-	IC clock OSC used in the power failure mode.
31	XC OUT	-	Frequency is 32.768 kHz.
32	VSS	-	IC Ground terminal.
33	-	-	-
34	KEY IN 4	I	Operation key data inputs.
35	KEY IN 3	I	
36	KEY IN 2	I	
37	KEY IN 1	I	
38	Vpp	I	- 30 V input for display (FLD) drive.
39	-	-	-
40	SEG p	O	Display segment outputs (FLD). (Included key-scan output)
41	SEG o	O	
42	SEG n	O	
43	SEG m	O	
44	SEG l	O	
45	SEG k	O	
46	SEG j	O	
47	SEG i	O	
48	G9	O	Display grid outputs (FLD).
49	G8	O	
50	G7	O	
51	G6	O	
52	G5	O	
53	G4	O	
54	G3	O	
55	G2	O	
56	G1	O	
57	SEG h	O	Display segment outputs (FLD). (Included key-scan output)
58	SEG g	O	
59	SEG f	O	
60	SEG e	O	
61	SEG d	O	
62	SEG c	O	
63	SEG b	O	
64	SEG a	O	

TMVP_FVT

Thorn EMI UK Rental Limited
The Park Centre
Arlington Business Park
Theale
Reading
Berkshire
RG7 4SA

Registration in England No. 502489

VP4H/E-BD 500 HA WM-530994